

PALOS VERDES PENINSULA  
LAND CONSERVANCY



# 2022

Palos Verdes  
Nature Preserve

# Annual Report

Prepared By

**Palos Verdes Peninsula  
Land Conservancy**

March 2023

Prepared for  
The Rancho Palos Verdes  
Natural Community  
Conservation Plan and  
Habitat Conservation Plan

In collaboration with  
City of Rancho Palos Verdes,  
California Fish and Wildlife  
Service, & U.S. Fish and  
Wildlife Service

## 2022 ANNUAL REPORT

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## 1.0 INTRODUCTION

The 2022 Palos Verdes Nature Preserve Annual Report for the Rancho Palos Verdes Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) fulfills annual submittal requirements by the Palos Verdes Peninsula Land Conservancy (PVPLC) for the Palos Verdes Nature Preserve (Preserve). Additionally this report details stewardship activities, research, funding, and community involvement in the Preserve during the period January 1 through December 31, 2022. This report also includes annual submittal requirements of the City of Rancho Palos Verdes including habitat tracking and updates on Covered Projects and Activities permitted under the NCCP/HCP.

PVPLC is the designated Habitat Manager for the Palos Verdes Nature Preserve for the City of Rancho Palos Verdes. As of August 2022, the Preserve now encompasses approximately 1,500 acres and is located on the southern side of the Palos Verdes Peninsula in the City of Rancho Palos Verdes, California. The Preserve was formed under the RPV NCCP/HCP to “maximize benefits to wildlife and vegetation communities while accommodating appropriate economic development within the City and region pursuant to the requirements of the NCCP/HCP Act and Section 10(a) of the ESA (URS 2004a).” The City Council adopted the NCCP/HCP in November 2019 and received its Section 10 permit in April 2020. The City is awaiting CDFW permit decisions. As a primary component of the NCCP/HCP, a Preserve design was proposed to conserve regionally important habitat areas and provide habitat linkages in order to benefit sensitive plants and wildlife. PVPLC manages the habitat in the Preserve per the requirements of the NCCP/HCP as well as other Preserve management duties further detailed in a management agreement with the City.

The primary focus of management for the Preserve is to maintain or restore habitat for the covered plant and animal species listed in the NCCP/HCP. A Habitat Management Plan was adopted in 2007 that outlines the restoration of five acres per year for a total of 15 acres over a three-year period. This plan also outlined the methodology for removal of exotic plant species, a predator control plan, and the monitoring of covered plant and animal species. PVPLC seeks additional funding when possible, to perform restoration on more than the minimum five acres per year required in the NCCP/HCP as well as for invasive species removal. Several opportunities of this nature occurred during the reporting period that enabled PVPLC to implement additional restoration as detailed below. Additionally, PVPLC executes several trail projects and habitat protection and enhancement measures with the aid of staff, volunteers and additional funding sources.

PVPLC also facilitates scientific research through community science programs and academic research in the Preserve. Volunteers greatly support the implementation of management strategies for the Preserve by assisting in monitoring the properties, wildlife, and habitat as well

as help restore habitat and maintain trails. Collaborating with regional high schools and colleges allows for scientific research that expands our understanding of the Preserve.

### **Annual Submittals (Included in This Report)**

1. Restoration Plans for the NCCP/HCP and Other Projects
2. NCCP/HCP Restoration Monitoring Report
3. Tracking of Habitat Impacts
4. Targeted Exotic Removal Program for Plants (TERPP) Report
5. Community Science and Education Programs
6. Trail Maintenance Activities and Project List
7. Volunteer Involvement and Support

### **Site Description**

The Preserve is located on the southern side of the Palos Verdes Peninsula in the City of Rancho Palos Verdes, California (Figure 1). The approximately 1,500-acre Preserve has been divided into 15 subareas referred to as Reserves (Table 1).

The topography of the Preserve is diverse, ranging from relatively flat lowland areas above steep coastal bluffs in the south, to very steep slopes, ridgelines and gullies on the slopes to the north. Elevations range from approximately sea level along the coastal edges of Vicente Bluffs, Abalone Cove, and Ocean Trails to approximately 1,300 feet above mean sea level at the northern most parcel, Vista del Norte. Adjacent land uses include single-family residences on most sides, open space associated with neutral lands on the Peninsula, the Pacific Ocean to the south and west, and the Los Verdes and Trump National golf courses near the western and eastern ends of the Preserve area.





**Figure I. Map of the Palos Verdes Nature Preserve with associated Reserves locations**

**Table I**  
**Reserve Names of the Palos Verdes Nature Preserve. See Figure I for locations**

Abalone Cove Reserve	Malaga Canyon Reserve**
Agua Amarga Reserve	Ocean Trails Reserve***
Alta Vicente Reserve	Portuguese Bend Reserve
Dorothy and Allen Lay Reserve	San Ramon Reserve
Filiorum Reserve	Three Sisters Reserve
Forrestal Reserve	Vicente Bluffs Reserve
Jacqueline M. Glass Family Reserve	Vista del Norte Reserve
Lower Filiorum Reserve*	
* Final Reserve Name Pending ** Will be added to the Preserve when NCCP/HCP is adopted *** Not managed by PVPLC, but managed under Habitat Conservation Plan	

## 2.0 HABITAT RESTORATION PLANS

Restoration is the process of re-establishing or enhancing historical biological functions and values to degraded habitats. Section 7.5 of the NCCP/HCP requires that the City restore a minimum of 250 acres of habitat over the 50-year Permit Term within the Preserve. A minimum of 5 acres of native habitat shall be restored each year, or a total of 15 acres every three years if exigencies prevent restoration of 5 acres each year.

The initial Preserve Habitat Management Plan (PHMP) for the NCCP/HCP was created in 2007. A component of the PHMP was the Habitat Restoration Plan for five acres per year for a total of 15 acres over the first three-year period. This plan was completed in April 2007 and concluded that Alta Vicente Reserve in the Preserve ranked the highest in terms of site suitability for an immediate restoration project. However, since a fire occurred at Portuguese Bend Reserve in August 2009, plans were adapted to focus immediate habitat restoration at Portuguese Bend, and only Phase 1 and 2 (10 acres) were implemented at Alta Vicente. The Restoration Plan for Portuguese Bend covered habitat restoration and monitoring of 25 acres over five years (2010 to 2015).



In 2015, PVPLC developed new habitat restoration plans to execute the final phases of the restoration at Alta Vicente, and these plans were included in the 2015 Comprehensive Report. Phase 3 was initiated in 2016 and Phase 4 initiated in 2017, with the installation of drip irrigation and coastal sage scrub vegetation species. In 2016, the Habitat Restoration Plan for the Abalone Cove Ecological Reserve was developed to continue with restoration at Abalone Cove Reserve. The plan includes three phases with site preparation of the first phase beginning in 2019. A fourth phase was added to the Abalone Cove plan in 2021 and was started in spring 2022. A new restoration plan will be completed in 2023 to continue with the goal of completing 250 acres of restoration within the permit term for the Palos Verdes Nature Preserve.

## **2.1 ALTA VICENTE RESERVE RESTORATION**

The Habitat Restoration Plan for Alta Vicente Reserve outlined appropriate habitat revegetation locations and methodology to adequately comply with the Preserve Management requirements of the Rancho Palos Verdes NCCP/HCP. The Habitat Restoration Plan for Alta Vicente Reserve provided guidelines for the establishment of coastal sage scrub (CSS), coastal cactus scrub (CCS), and PVB butterfly habitat on a total of 15 acres during 3 consecutive years at the Alta Vicente Reserve with an additional 5 acres added to the project.

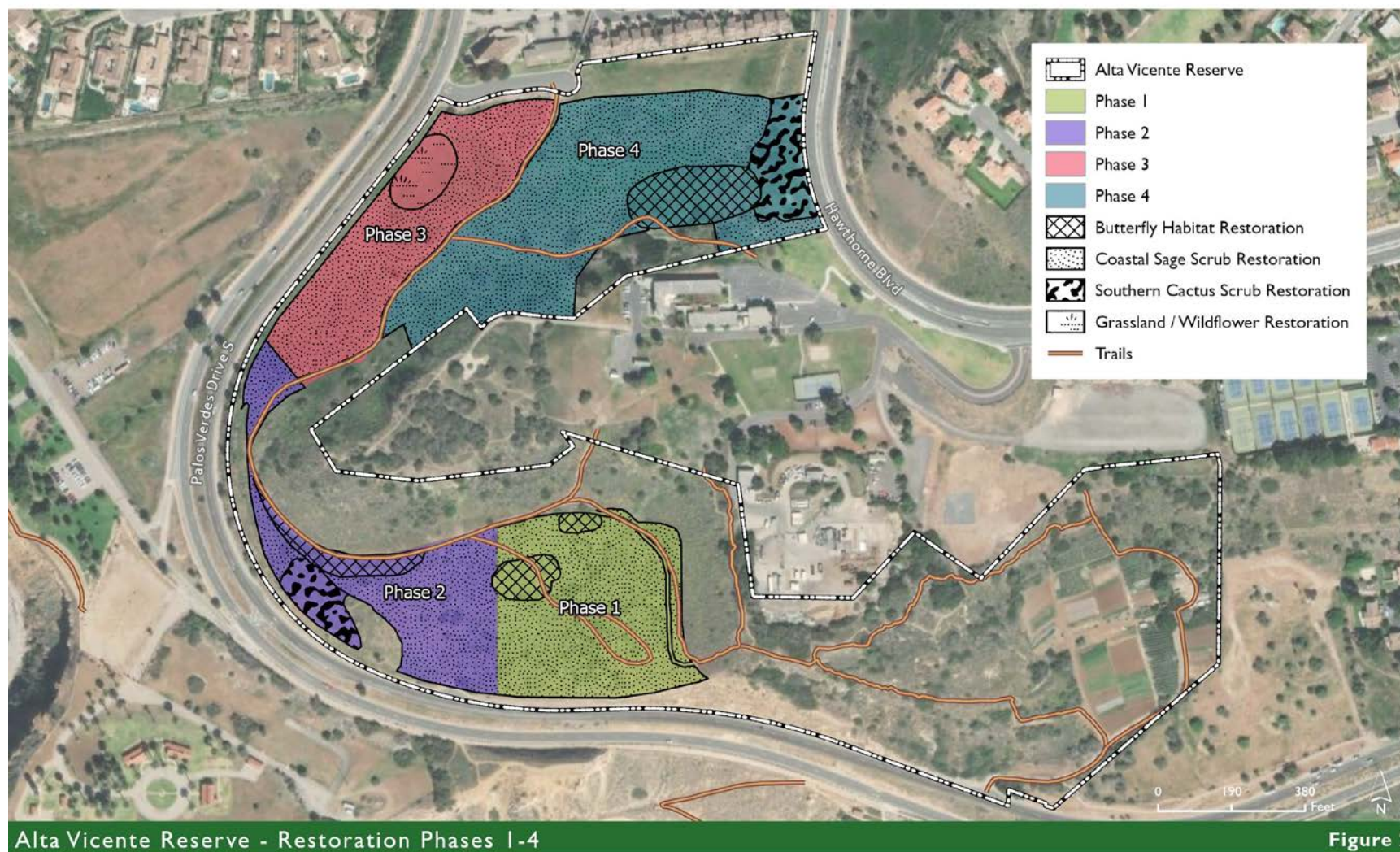
The habitat restoration conducted at the Alta Vicente Reserve consists of four phases, with one phase initiated each year. The first five-acre phase of restoration, Phase 1 (Figure 2) began with site preparation during the fall of 2007 and 2008 to minimize weeds after planting (as per the timeline in the Alta Vicente Restoration Plan, Table 2). Phase 1 plants were installed and hydroseeded during the winter of 2009/2010. Site preparation for Phase 2 began in fall 2008. In December 2010, staff removed *Acacia cyclops* and completed planting and seeding in the Phase 2 area. Staff weeded and maintained Phase 1 and 2. Additional container plants were installed from 2012 to 2017 to fill in areas with low native plant cover.

Phase 3 (Figure 2) was initiated in fall 2016 with the installation of drip irrigation system and container plants throughout the 5 acre area. Year 1 monitoring began in spring 2018. Preparation for Phase 4 planting began in summer 2017 with site clearing using goats and drip irrigation system installation. Phase 4 (Figure 2) planting began in winter 2017 and extended through early 2018, Year 1 monitoring began in spring 2019.

Table 2

**Restoration Project Schedule for Alta Vicente Reserve, based on the Alta Vicente Reserve Habitat Restoration Plan**

	Task	Date
PHASE 1	Site clearing and soil preparation	Fall 2007, Fall 2008
	Installation of temporary irrigation system	Fall 2008
	Weed/exotic removal and grow-kill cycles	Fall 2008-Spring 2009
	Planting container stock	Early Winter 2009/2010
	Hydroseed application	Winter 2009/2010 (following planting)
	Completion of installation/assessment of site installation	Following completion of installation and seeding and 120 day maintenance period
	5-year biological monitoring and maintenance	To begin upon successful installation of restoration work
	Phase one completion	2015, end of Year 5
PHASE 2	Site clearing and soil preparation	Fall 2008, Fall 2009
	Installation of temporary irrigation system	Fall 2008, Fall 2009
	Weed/exotic removal and grow-kill cycles	Fall 2008, Fall 2009,-Spring 2010
	Planting container stock	Winter 2010/2011
	Seed application	Winter 2010/2011 (following planting)
	Completion of installation/assessment of site installation	Following completion of installation and seeding and 120 day maintenance period
	5-year biological monitoring and maintenance	To begin upon successful installation of restoration work
	Phase two completion	2016, end of Year 5
PHASE 3	Begin site preparation, weed removal	Fall 2016
	Install irrigation	Fall 2016
	Planting Container Stock	Fall and Early Winter 2016
	Seed application	Fall and Early Winter 2017
	Monitoring and Maintenance	Begin after planting, Winter 2016
	5-year biological monitoring and maintenance	Spring 2018-Spring 2022
PHASE 4	Begin site preparation, weed removal	Summer 2017
	Install irrigation	Fall 2017
	Planting Container Stock	Fall and Early Winter 2017
	Seed application	Fall and Early Winter 2017
	Monitoring and Maintenance	Began after planting, Winter 2017
	5-year biological monitoring and maintenance	Spring 2019-Spring 2023



**Figure 2. Map of Phase I-4 Restoration Areas at Alta Vicente Reserve**

## 2.2 PORTUGUESE BEND RESERVE RESTORATION

The habitat restoration plan for Portuguese Bend was to complete 25 acres in five phases (Table 3, Figure 3). Site preparation at Portuguese Bend began in February 2010. Field staff weeded (manual/mechanical/herbicide) the burn area in 2010. In February 2011, goats were deployed to clear vegetation. Due to the high density of weeds, an additional year of weeding was implemented, and plants were installed on ten acres in fall 2012 (Phase 1 and Phase 2).

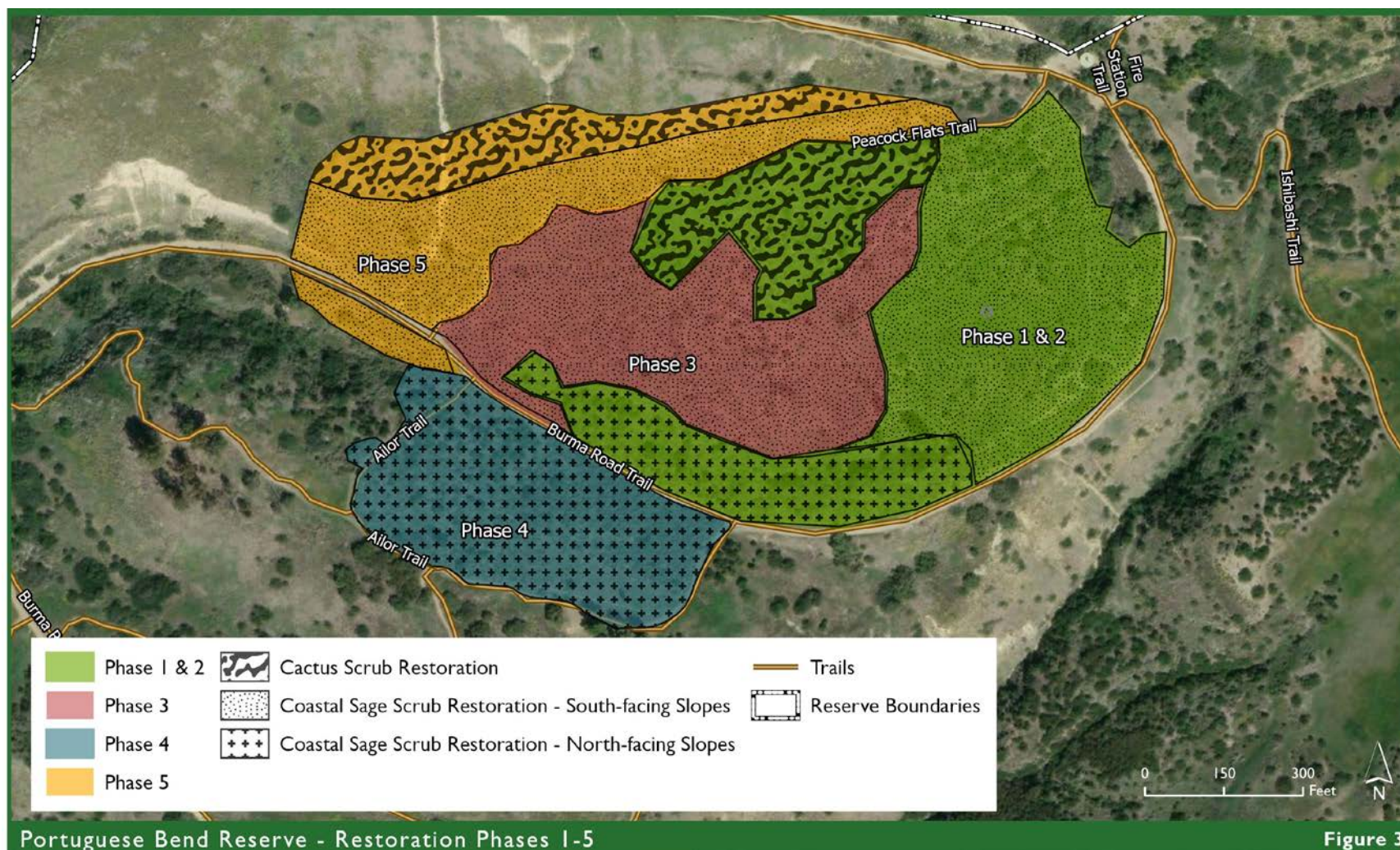
PVPLC implemented “grow and kill” prior to plant installation, and improve seed and plant survival after planting. Phases 1, 2 and 3 were irrigated with overhead sprinklers. Drip irrigation was installed for Phases 4 in fall 2014 and for Phase 5 in fall 2015, coinciding with the plant installation for those phases. Weed control was implemented in all phases for five years after initiated and continues to this day on an as needed basis. Table 3 provides the implementation schedule for Phase 1 through 5 at Portuguese Bend.

Table 3

**Restoration Project Schedule for Portuguese Bend Reserve Phases 1, 2, 3, 4 and 5, based on the Portuguese Bend Reserve Habitat Restoration Plan**

	Task	Date
PHASE 1 and PHASE 2	Begin site preparation, weed removal	Fall 2010
	Install irrigation	Winter 2012
	Final site preparation: weed and thatch removal	Fall 2012
	Installation: Seeding and planting	Fall 2012-Early Winter 2013
	Maintenance weeding	Winter 2013-Spring 2014
	Fill-in planting, as needed	Fall 2013-Fall 2014
	5-year biological monitoring and maintenance	Spring 2013-Spring 2017
	Phase one and two completion	2017, end of Year 5
PHASE 3	Site preparation, weed removal	Fall 2012-Fall 2013
	Final site preparation: weed and thatch removal	Fall 2013
	Installation: Seeding and planting	Fall 2013-Early Winter 2014
	Maintenance weeding	Winter 2014-Spring 2015
	Remedial seeding, as needed	Fall 2014-Fall 2015
	5-year biological monitoring and maintenance	Spring 2014-Spring 2018
	Phase three completion	2018, end of Year 5
PHASE 4	Site preparation, weed removal	Fall 2013-Fall 2014
	Final site preparation: weed and thatch removal	Fall 2014
	Installation: Seeding and planting	Fall 2014-Early Winter 2015
	Maintenance weeding	Winter 2015-Spring 2016
	Remedial seeding, as needed	Fall 2015-Fall 2016
	5-year biological monitoring and maintenance	Spring 2015-Spring 2019
	Phase 4 completion	2019, end of Year 5
PHASE 5	Site preparation, weed removal	Fall 2014-Fall 2015
	Final site preparation: weed and thatch removal	Fall 2015
	Installation: Seeding and planting	Fall 2015-Early Winter 2016
	Maintenance weeding	Winter 2016-Spring 2017
	Remedial seeding, as needed	Fall 2016-Fall 2017
	5-year biological monitoring and maintenance	Spring 2016-Spring 2020
	Phase 5 completion	2020, end of Year 5





**Figure 3. Map of Phase I – 5 Restoration Areas at Portuguese Bend Reserve**

### **2.3 ABALONE COVE RESTORATION**

The habitat restoration project at Abalone Cove Reserve will restore 20.3 total acres of mixed coastal scrub, and mixed Southern Coastal Bluff Scrub/Southern Cactus Scrub (Table 4, Figure 4). The project began in 2019, by introducing goats to graze the Phase I area to reduce the cover of invasive plants and prepare the site for the habitat planting effort started in 2020. At the end of 2019 and through the end of 2020, PVPLC crews removed non-native woody shrubs such as acacia and peppertree. Planting in Phase I began in winter of 2019 following irrigation installation. Phase 2 planting began in fall of 2020 following site preparation and irrigation installation for that phase. Phase 3 site preparation began in spring 2021 and irrigation installation was finished at the end of 2021 with planting implemented in early 2022. Phase 4 was grazed of non-natives in spring of 2022 and irrigation installation is set to be completed in early 2023 followed by planting and maintenance. The full restoration plan can be found in Appendix A.

**Table 4**

**Restoration Project Schedule for Abalone Cove Reserve, based on the  
Abalone Cove Reserve Habitat Restoration Plan**

	<b>Task</b>	<b>Date</b>
<b>PHASE 1</b>	Site clearing	Fall 2019
	Installation of supplemental watering system	Spring 2020
	Invasive weed species control and grow-kill cycles	Fall 2019 – Summer 2020
	Planting container stock	Spring 2020
	Seed application	Fall 2020
	Monitoring and maintenance	To begin upon successful installation of plants
<b>PHASE 2</b>	Site clearing	Spring 2020
	Installation of supplemental watering system	Summer 2020
	Invasive weed species control and grow-kill cycles	Spring 2020 – Fall 2020
	Planting container stock	Fall 2020
	Seed application	Fall 2020
	Monitoring and maintenance	To begin upon successful installation of plants
<b>PHASE 3</b>	Site clearing	Spring 2021
	Installation of supplemental watering system	Summer 2021
	Invasive weed species control and grow-kill cycles	Spring 2021 – Fall 2021
	Planting container stock	Fall 2021
	Seed application	Fall 2021
	Monitoring and maintenance	To begin upon successful installation of plants
<b>PHASE 4</b>	Site clearing(manual and goats)	Spring 2022
	Installation of supplemental watering system	Fall-Winter 2022/23
	Invasive weed species control and grow-kill cycles	Spring 2022- Winter 2022/23
	Planting container stock	Winter 2022/23
	Seed application	Winter 2022/23
	Monitoring and maintenance	To begin upon successful installation of plants





**Figure 4. Map of Phase I – 4 Restoration Areas at Abalone Cove Reserve**



### 3.0 ADDITIONAL RESTORATION ACTIVITIES IN 2022

PVPLC seeks additional funding, to perform restoration on more than the minimum five acres per year required in the NCCP/HCP. Several funding opportunities were pursued during the reporting period. Two grants were received and implementation began during 2022 and several other grants decisions are still being anticipated. Figure 5A-5F provides a site map for all restoration projects active in 2022, including the restoration at Alta Vicente, Portuguese Bend and Abalone Cove Reserves that fulfills the requirements of the NCCP/HCP Habitat Restoration Plan. A complete summary of all restoration work completed in the Preserve, along with maps of restoration sites, can be found in Table 5. This summary includes several types of restoration techniques including Intensive Restoration (outplanting), Restoration (large scale seeding), and Passive Restoration (invasive removal and natural revegetation).

**Table 5. PALOS VERDES NATURE PRESERVE RESTORATION PROJECTS THROUGH 2022**

NCCP/HCP Projects	Funding source	Location	Habitat Type	Acres	Status	Start Date	End Date
Alta Vicente	NCCP/HCP	Phase 1	CSS	4.5	Completed	2007	2014
Alta Vicente	NCCP/HCP	Phase 1	PVB habitat	0.5	Completed	2007	2014
Alta Vicente	NCCP/HCP	Phase 2	CSS	4	Completed	2008	2015
Alta Vicente	NCCP/HCP	Phase 2	Cactus scrub	0.5	Completed	2008	2015
Alta Vicente	NCCP/HCP	Phase 2	PVB habitat	0.5	Active	2008	2015
Alta Vicente	NCCP/HCP/LA County Grant	Phase 3	CSS	4.5	Completed	2016	2022
Alta Vicente	NCCP/HCP/LA County Grant	Phase 3	Wildflowers	0.5	Completed	2016	2022
Alta Vicente	NCCP/HCP/LA County Grant	Phase 4	Cactus scrub	1	Active	2017	2023
Alta Vicente	NCCP/HCP/LA County Grant	Phase 4	PVB habitat	1	Active	2017	2023
Alta Vicente	NCCP/HCP/LA County Grant	Phase 4	CSS	5	Active	2017	2023
Portuguese Bend	NCCP/HCP	Phase 1 and 2	CSS	8	Completed	2010	2017
Portuguese Bend	NCCP/HCP	Phase 1 and 2	Cactus scrub	2	Completed	2010	2017
Portuguese Bend	NCCP/HCP	Phase 3	CSS	5	Completed	2012	2018
Portuguese Bend	NCCP/HCP	Phase 4	CSS	5	Completed	2013	2019
Portuguese Bend	NCCP/HCP	Phase 5	CSS	4	Completed	2014	2020
Portuguese Bend	NCCP/HCP	Phase 5	Cactus scrub	1	Completed	2014	2020
Abalone Cove	NCCP/HCP	Phase 1	CSS	4.59	Active	2019	2025
Abalone Cove	NCCP/HCP	Phase 1	Mulefat Scrub	.21	Active	2019	2025
Abalone Cove	NCCP/HCP	Phase 2	Mixed CSS	4	Active	2020	2026
Abalone Cove	NCCP/HCP	Phase 3	Mixed CSS	4.3	Active	2021	2027
Abalone Cove	NCCP/HCP	Phase 4	CSS	2	Active	2023	2029
Abalone Cove	NCCP/HCP	Phase 4	Cactus Scrub	3	Active	2023	2029
			<b>NCCP Acreage Subtotal:</b>	<b>65.1</b>			

Additional Projects	Funding source	Location	Habitat Type	Acres	Status	Start Date	End Date
Abalone Cove	Coastal Conservancy, NFWF, SMBRC, USFWS		CSS	5	completed	2013	2016
Abalone Cove	Heritage Castle		CSS, Cactus Scrub, Butterfly habitat	1.5	active	2020	2025
Agua Amarga	USFWS		CSS	2	Completed	2001	2003
Agua Amarga	USFWS		Riparian	0.5	Completed	2004	2005
Agua Amarga	LACSD		Riparian	0.25	Completed	2011	2016
Agua Amarga	D&M		Riparian	0.2	Completed	2012	2017
Agua Amarga	USFWS		Butterfly habitat	13	Active	2022	2025
Alta Vicente	PVPLC	Alta Vicente Trail	Cactus Scrub	0.82	Completed	2018	ongoing
Filiorum	PVPLC	Pony	Cactus Scrub	3.08	Completed	2018	ongoing
Portuguese Bend	El Segundo Mitigation	Ishibashi	CSS and grassland	9.5	Completed	2010	2015
Portuguese Bend	HCF grant	Ishibashi	CSS	0.25	Completed	2012	2015
Portuguese Bend	HCF grant	Peppertree	CSS	0.5	Completed	2012	2015
Portuguese Bend	Local Assistance Grant		Cactus scrub	3	Completed	2010	2011
Portuguese Bend	PVPLC	Peacock Flats	Cactus scrub	0.86	Active	2018	
Three Sisters	LAWA		CSS	13.3	Completed	2007	2013
Three Sisters	LAWA		Grassland	7.7	Completed	2007	2013
Three Sisters/McCarrell's Canyon	Coastal Conservancy		Riparian	0.5	Completed	2009	2012
Three Sisters/McCarrell's Canyon	Coastal Conservancy		CSS	2	Completed	2009	2012
Three Sisters	PVPLC	McCarrell's Canyon Trail	Cactus Scrub	2.3	Completed	2018	ongoing
Vicente Bluffs	Coastal Conservancy		Coastal scrub	2	Completed	2009	2014
Vicente Bluffs	PVPLC	Adopt-a-Plot	ESB habitat	0.1	Active	2016	ongoing
Fuel Load Reduction	RPV	PVNP	Acacia	23	Completed	2019	2019
Fuel Load Reduction	RPV	PVNP	NN Grassland	15	Completed	2019	2019

Additional Projects	Funding source	Location	Habitat Type	Acres	Status	Start Date	End Date
Fuel Load Reduction	RPV	PVNP	Acacia	14	Completed	2020	2020
Fuel Load Reduction	RPV	PVNP	NN Grassland	10.8	Completed	2020	2020
Fuel Load Reduction	RPV	PVNP	Acacia	11.64	Completed	2021	2021
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	2	Completed	2019	2019
Fuel Load Reduction	Rolling Hills	PVNP	NN Grassland	16	Completed	2019	2019
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	1	Completed	2020	2020
Fuel Load Reduction	Rolling Hills	PVNP	NN Grassland	14	Completed	2020	2020
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	2	Completed	2021	2021
Fuel Load Reduction	Rolling Hills	PVNP	NN Grassland	5.5	Completed	2021	2021
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	1.5	Completed	2022	2022
Fuel Load Reduction	Rolling Hills	PVNP	NN Grassland	5.5	Completed	2022	2022

<b>TOTAL Acreage</b>	<b>255.4</b>
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\* NCCP Funding Sources include a combination of sources including the City of Rancho Palos Verdes Management Agreement, community contributions, and grants to name a few.

FIGURE 5A. PALOS VERDES NATURE PRESERVE RESTORATION THROUGH 2022





FIGURE 5B. PALOS VERDES NATURE PRESERVE RESTORATION THROUGH 2022

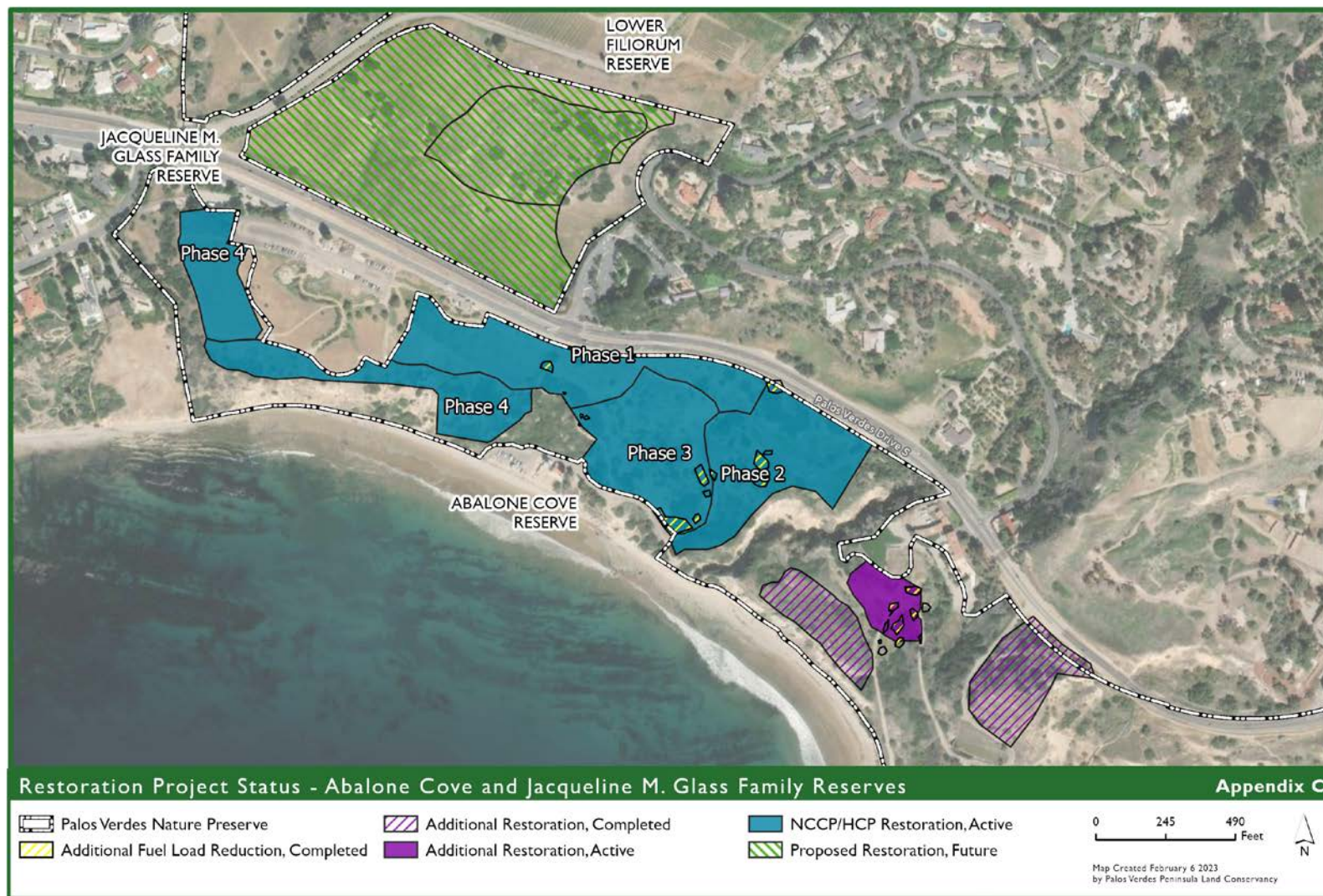




FIGURE 5C. PALOS VERDES NATURE PRESERVE RESTORATION THROUGH 2022

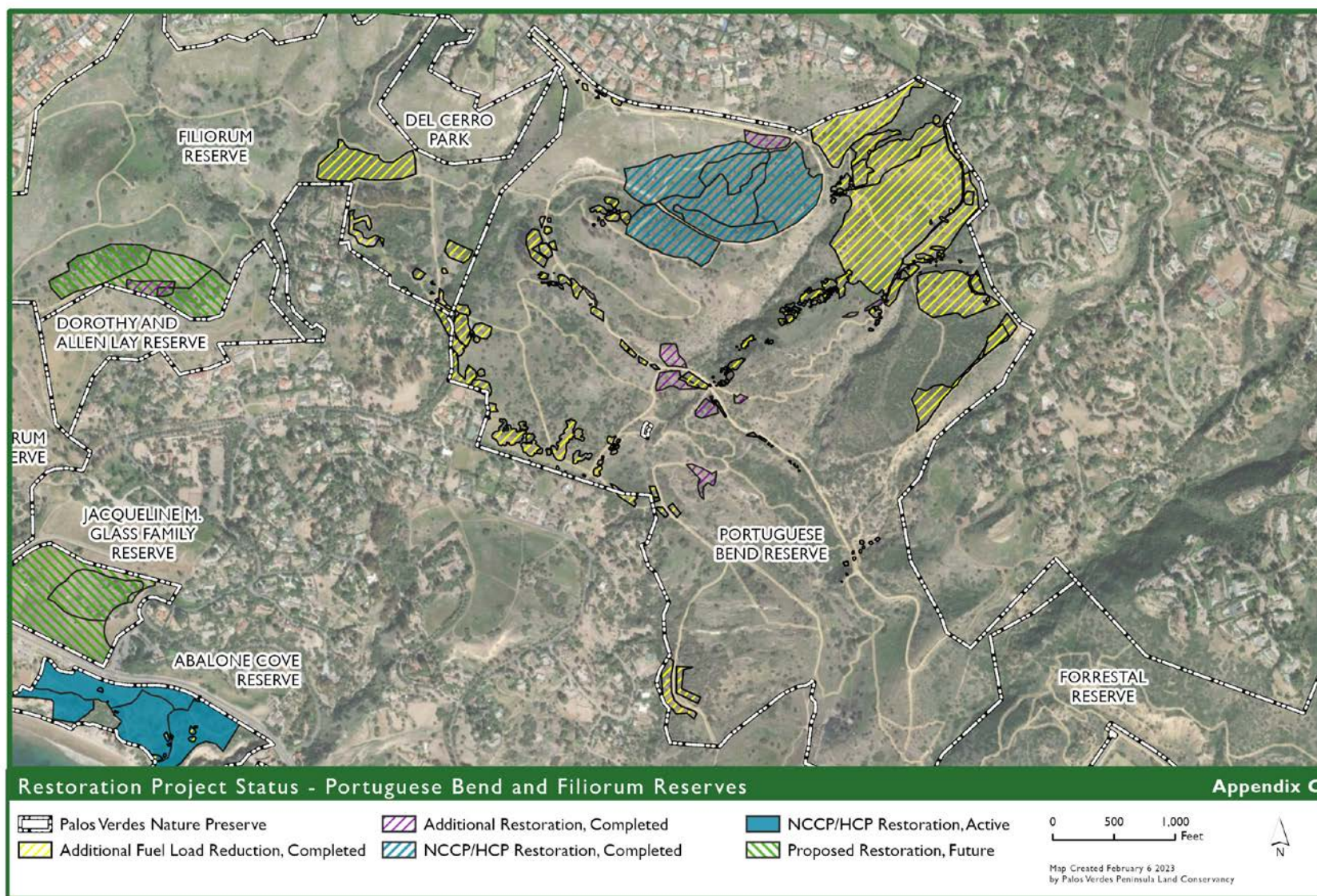
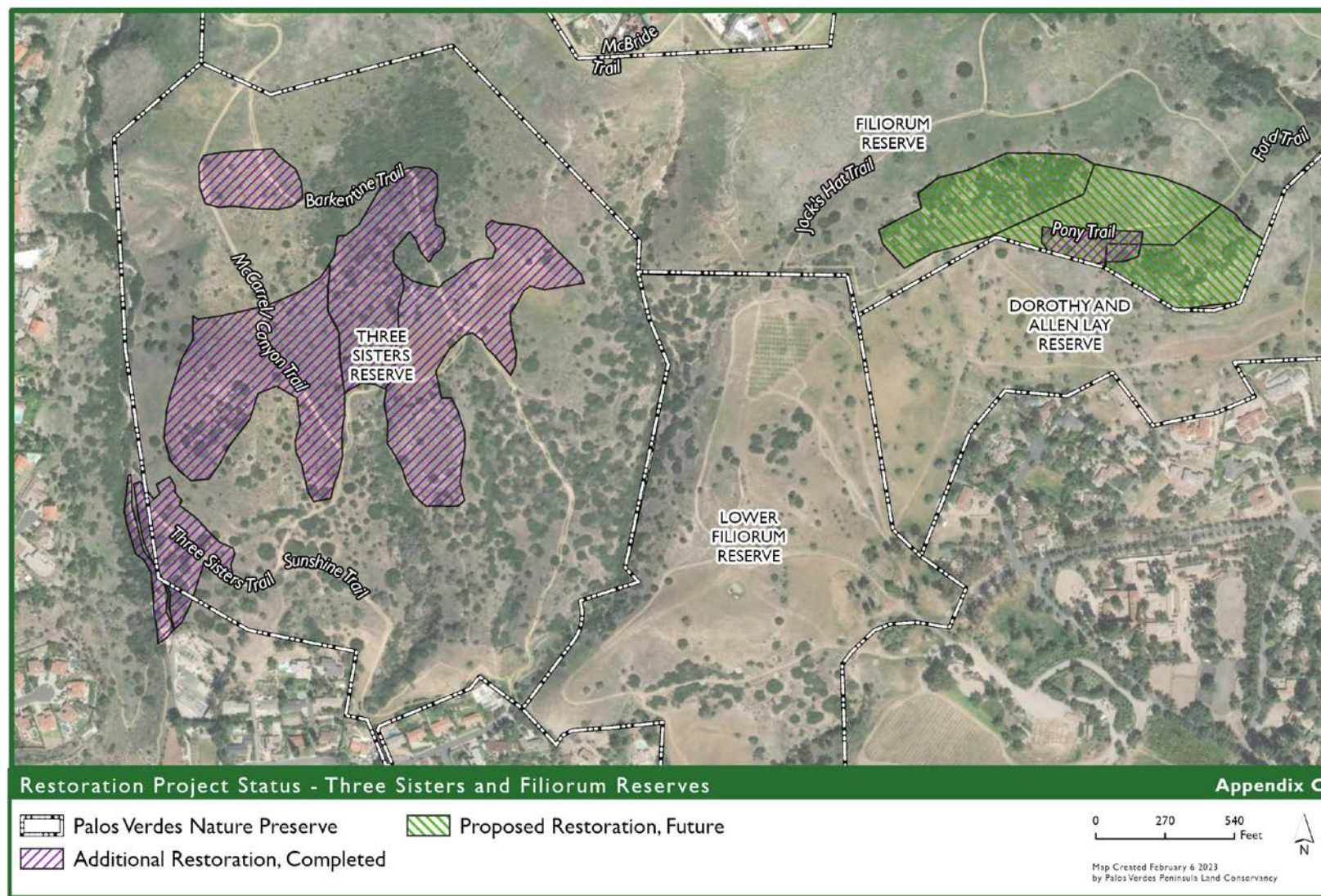


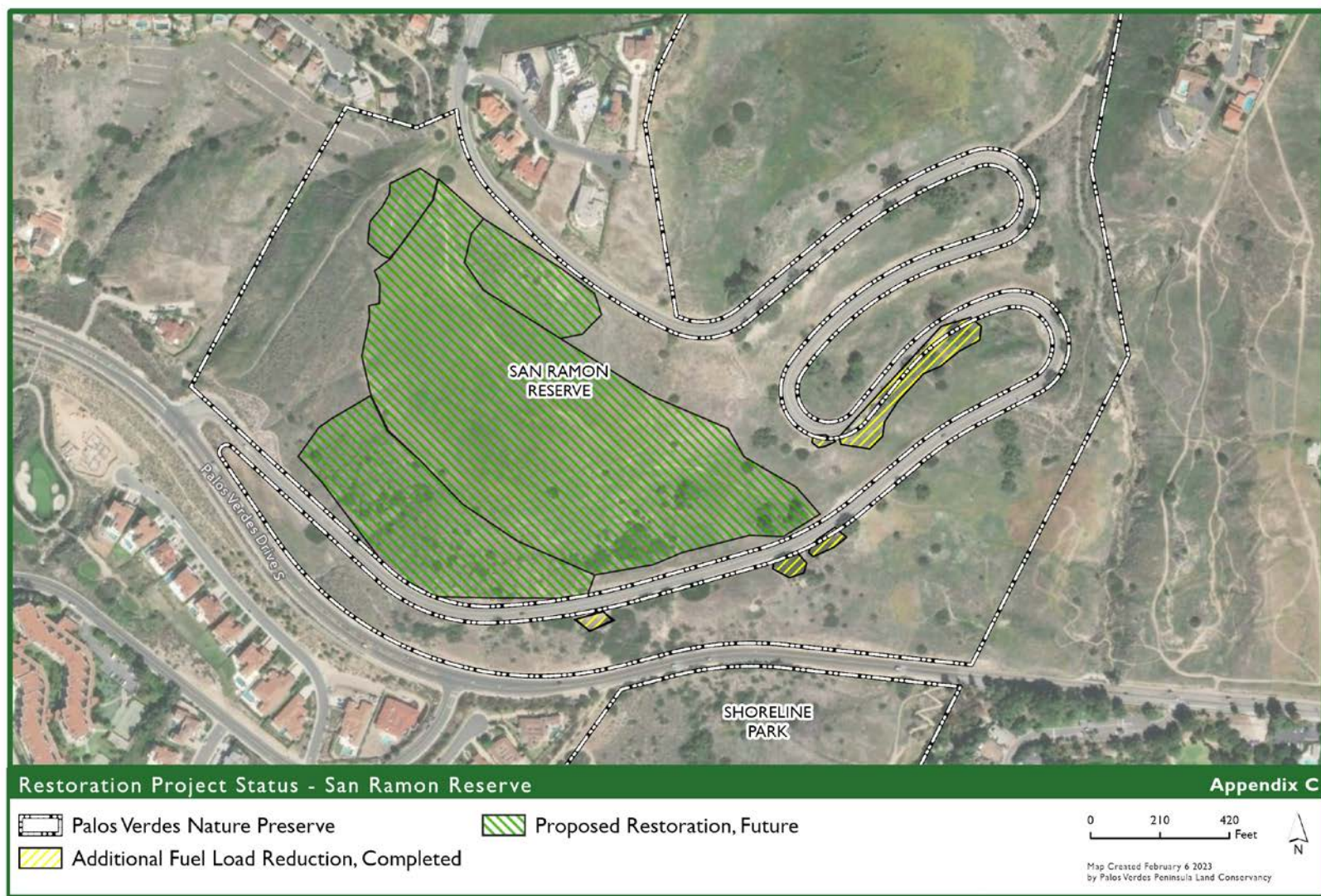


FIGURE 5D. PALOS VERDES NATURE PRESERVE RESTORATION



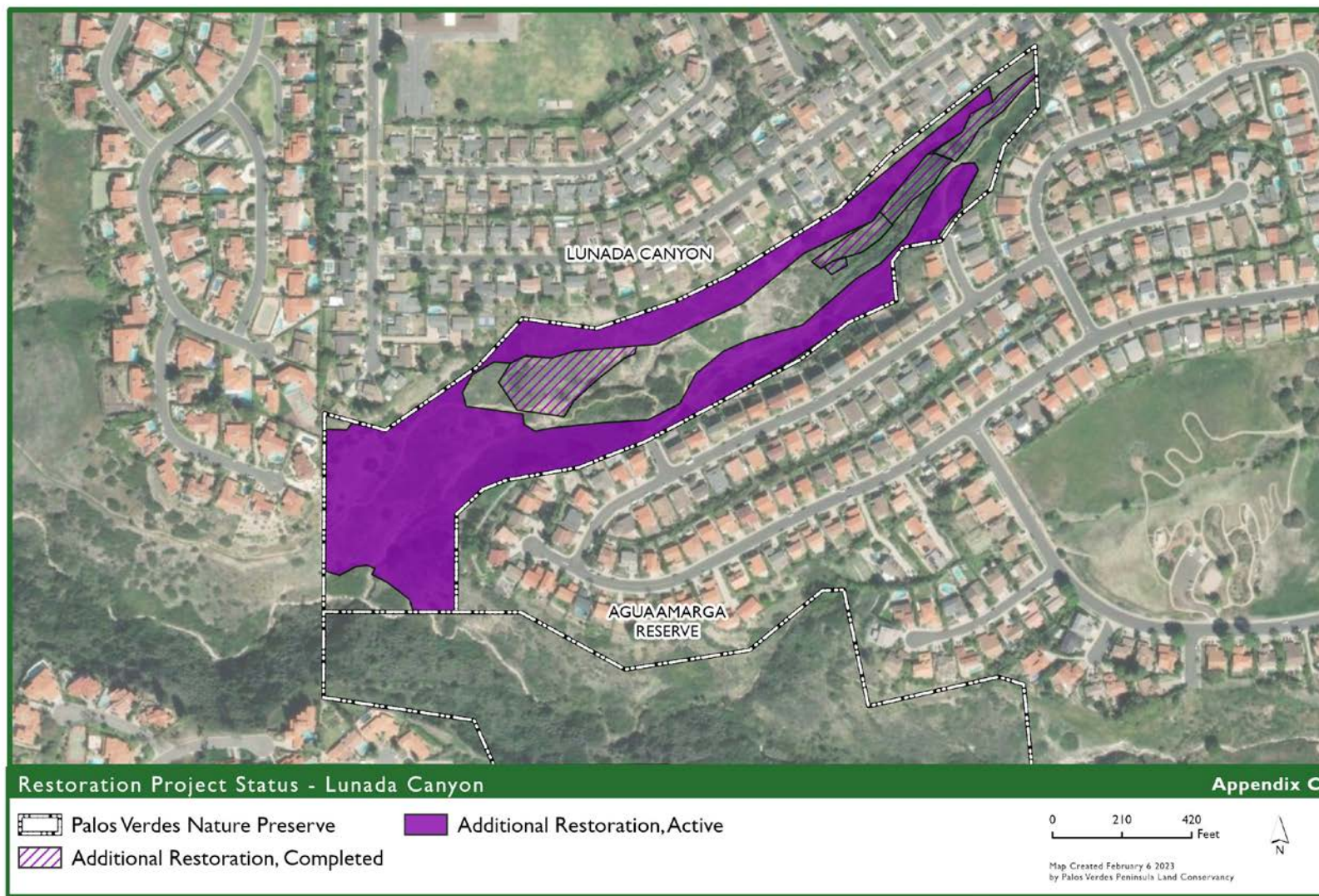


**FIGURE 5E. PALOS VERDES NATURE PRESERVE RESTORATION**





**FIGURE 5F. PALOS VERDES NATURE PRESERVE RESTORATION**



### 3.1 ABALONE COVE

In 2015, illegal grading took place in the Abalone Cove Reserve. The city took action working closely with the US Fish and Wildlife Service to create a mitigation plan for the area. Project planning and design began and in 2019, site preparation started with the removal of non-native species. Irrigation installation and planting occurred in 2020 and is now being maintained for non-native species and fill-in planting as needed. Site maintenance started in 2021 and is set to occur for 5 years along with monitoring.

### 3.2 AGUA AMARGA

In 2012, an additional mitigation project (D&M Eight LTD) funded the planting of 147 riparian plants at Lunada Canyon. The plants were installed in January 2014 and irrigated with a drip irrigation system. Severe rains in 2014 caused torrential stream flows that removed some of the installed plants. PVPLC installed replacement plants and monitored the site's recovery in 2015, 2016, 2017, and 2018. The final report was submitted in 2019. Continued maintenance occurred at the site in 2020, 2021, and 2022 with light weeding and trash cleanup in the riparian zone.

In 2022, the U.S. Fish and Wildlife Service awarded PVPLC a grant for restoration in Lunada Canyon. The "Lunada Canyon habitat restoration for the reintroduction of the Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) in the Palos Verdes Nature Preserve" project aims to create 13 acres of PVBB habitat in degraded areas within the canyon. The Land Conservancy will incorporate PVBB habitat requirements which includes regular disturbance to provide for the ideal conditions for future reintroduction of the species from an existing captive rearing program.

### 3.3 VICENTE BLUFFS

In June 2008, a grant agreement was signed with the State Coastal Conservancy to provide habitat restoration at Vicente Bluffs Reserve. PVPLC restored three acres of coastal bluff scrub and El Segundo blue butterfly habitat by removing acacia, pampas grass and ice plant, and installing container plants with coastal bluff scrub and El Segundo blue butterfly host plants. PVPLC added plants to this site in 2013, 2014 and 2015 to fulfill the grant goals. Since then, volunteers have continued the effort to plant host plants and remove weeds through 2022 in order to expand habitat area for the El Segundo blue butterfly.

### 3.4 PORTUGUESE BEND

In 2012, PVPLC received funding from the Habitat Conservation Fund to create trail-side habitat consisting of coastal sage scrub and cactus scrub to close unauthorized trails. The closeout of this

grant occurred in 2018. PVPLC continues to monitor the successful completed work and maintain closures on unauthorized trails.

### 3.5 FUEL LOAD REDUCTION PROJECTS

In the summer of 2019, PVPLC proposed a fuel load reduction project to the City of Rancho Palos Verdes which consisted of the removal of 23 acres of Acacia (*Acacia cyclops*) shrubs and 15 acres of non-native mustard. This approved project occurred in three locations in the Portuguese Bend Reserve near Portuguese Canyon and in the southern area of the preserve near Narcissa drive. Large Acacia shrubs were cut, chipped and taken offsite where possible. PVPLC has been monitoring the areas of Acacia removal and treating any regrowth and removing any seedlings. Goats were used in the San Ramon Reserve to reduce the large stands of non-native brush along the San Ramon Trail. In the winter of 2019, a second project was proposed to continue with the removal of Acacia and the mowing of mustard. A proposed 31 acres of high density Acacia stand removal and 16 acres of mowing was planned for Portuguese Bend, Forrestal, Vicente Bluffs, Filiorum, Three Sisters, and San Ramon for 2020. Locations were chosen based on surrounding vegetation types and native plant observations below the invasive species canopies. Due to access issues, stand density and native plant cover, only 14 acres of the Acacia were removed and 10.8 acres of mustard were mowed throughout 2020. Large stands of native plants were uncovered below the invasive species. PVPLC is monitoring these locations for Acacia regrowth and treating as needed. The final locations of the project were implemented in 2021 at Portuguese Bend totaling an additional 11.64 acres. The Acacia removal locations were along Burma Road and abutted the Portuguese Bend NCCP 25 acre restoration project. PVPLC continues to monitor these locations for regrowth and treating as needed.

Following the successful Fuel Load Reduction project with the City of Rancho Palos Verdes, the City of Rolling Hills and PVPLC began conversations about Fuel Load Reduction abutting the city's boundaries and in 2019 the City of Rolling Hills funded the first phase of a Fuel Load Reduction Project. Phase I consisted of 2 acres of Acacia removal and 16 acres of dry brush mowing which consisted of black mustard and non-native grasses. Seeing the success of the project and the previous City of Rancho Palos Verdes project, a second phase was funded in 2020, which consisted of 1 acre of Acacia removal and 14 acres of dry brush mowing. A third phase was funded in 2021 and 2 acres of Acacia were removed and 5.5 acres of dry brush were mowed. In 2022, a fourth phase was proposed and funded, with the removal 1.5 acres of Acacia and 5.5 acres of dry brush.

All Acacia removal locations and mowing locations are being treated as passive restoration sites. Passive restoration is the process of removing environmental stressors, invasive species in this case, and allowing for natural succession to occur. The locations of these treatments are showing signs of regeneration of annual and perennial native plant species that were being choked out by the invasive species. A natural seed bank is still present and PVPLC will continue to monitor and

maintain these sites, resources permitting, and will continue to pursue funding to remove acacia on the preserve and mow large stands of mustard and non-native grasses.

The full details of the Acacia removal and fuel load reduction project can be found in the Targeted Exotic Removal Program for Plants, Appendix D.

## **4.0 MONITORING**

### **4.1 HABITAT RESTORATION MONITORING**

PVPLC's stewardship staff conducted surveys at the restoration sites throughout the Preserve including quantitative vegetation transects, qualitative vegetation assessments and photo point monitoring. Vegetation transect surveys were conducted using standardized methods (line intercept and CNPS Rapid Vegetation Assessment) that provide data on the cover of native and non-native plants in the habitat in order to evaluate success against criteria as determined in the habitat restoration plans. Quantitative point-intercept transect surveys are conducted in Year 3 and Year 5 after planting, whereas qualitative rapid vegetation assessments are conducted in Years 1, 2 and 4. In 2022, restoration monitoring was conducted at Alta Vicente, Portuguese Bend and Abalone Cove Reserves. Detailed monitoring reports are in Appendix B.

Over the years, PVPLC has adapted its approach to restoration and resulting low percent cover by increasing plant density and utilizing drip irrigation instead of overhead sprinklers in subsequent restoration projects, and we are seeing a noticeable improvement. At Alta Vicente, the plants in all phases of the restoration area are healthy and growing. The cactus scrub has met success criteria. The coastal sage scrub (CSS) in Phase 1 and 2 has achieved success criteria of 50% native plant cover. PVB habitat in Phase 1 and 2 have not yet passed success criteria. In 2023, staff will continue to focus on controlling weeds on a regular basis to decrease competition and increase bare ground for seed germination. Targeted soil disturbance will also occur to stimulate early successional host plant species germination. PVPLC will continue to observe and control weeds in Phases 1 and 2 to observe the rate of restoration and monitor butterfly habitat transects, but will stop monitoring CSS habitat transects since they are beyond Year 10 of restoration and are meeting qualitative measurements. In 2022, Phase 3 was monitored both quantitatively and qualitatively for its Year 5 analysis and passed native cover success criteria on schedule (>50% CSS habitat; >40% grassland/wildflower habitat). In Phase 4, CSS habitat native is nearing Year 5 goals and is on track to meet success criteria in 2023. Notably, the Palos Verdes blue butterfly (PVB) habitat in Phase 4 met the success criteria (>10% host plant cover) for the first time in 2022, one year ahead of schedule. Cactus scrub habitat also met success criteria (>30% native cover; >% cactus cover) ahead of schedule in Phase 4.

At Portuguese Bend, the cactus scrub restoration in Phase 1 and 2 had already met success criteria in 2018. In Phase 3, native plant cover achieved quantitative success criteria for Year 5 in 2018. In Phase 4 quantitative and qualitative measurements describe this transect as meeting criteria for both native and non-native plant cover in 2018 and transect PB7 (Phase 4) were removed from monitoring activities. Phase 5 transect PB8 has met success criteria and was removed from monitoring activities. The cactus scrub habitat transect PB-9 in Phase 5 (Year 7), passed success criteria in 2022 for the first time. Cactus scrub is slow-growing and is expected meet goals later than other habitat types like CSS. Success can largely be attributed to consistent weed management, infill planting, and supplemental irrigation.

At Abalone Cove, qualitative methods were used to monitor Year 1 and Year 2 of restoration success. In Year 2 of Phase 1, mulefat scrub habitat passed success criteria ahead of schedule (>40% mulefat Scrub and <25% non-native species cover), and CSS habitat is nearing Year 3 goals. The Abalone Cove restoration Phase I quantitative monitoring will start in Year 3 (2023). Monitoring transects in Phase 2 were established in 2022 and qualitative monitoring was performed for the first time. Cactus scrub habitat already met success criteria (>30% native Cactus Scrub cover, including and >5% cacti cover, and <25% non-native cover) and one of two CSS habitat transects passed ahead of time (>40% CSS cover). Quantitative surveys will begin in Phase 2 in 2024. In 2023, Phase 3 and Phase 4 transects will be established and monitored for the first time. Phase 3 and 4 restoration habitat includes CSS, cactus scrub, and bluff scrub. Success at Abalone Cove can largely be attributed to additional drip irrigation installation in 2022 and consistent weed management by PVPLC technicians.

## 4.2 COVERED SPECIES MONITORING

The NCCP/HCP requires surveys for covered species on the Preserve every three years. The last report on the status of covered plant species, California gnatcatcher, and cactus wren was completed in 2021 for the 2019-2021 reporting period. The surveys for El Segundo blue butterfly were completed for this reporting period in 2022 and will be included in the 2022-2024 comprehensive report.

The NCCP/HCP includes a total of six covered plant species. They are aphanisma (*Aphanisma blitoides*), south coast saltscall (*Atriplex pacifica*), Catalina crossosoma (*Crossosoma californicum*), island green dudleya (*Dudleya virens* ssp. *insularis*), Santa Catalina Island desert thorn (*Lycium brevipes* var. *hassei*) and woolly seablite (*Suaeda taxifolia*). Surveys for covered plant species will be triggered by precipitation that totals at least 9.75 inches (75% of the annual average), or the last year of the comprehensive reporting period. The 2021-22 seasonal rainfall was recorded 10.30" for Rancho Palos Verdes. Due to the limited amount time for planning these surveys after late season rains, the survey was not done in 2022 and is expected to be done in subsequent



years. The last survey for covered plants was conducted in 2019 due to the adequate precipitation levels. The Covered Plant species report is available in the 2019-2021 cumulative report.

### **4.3 REINTRODUCTION MONITORING RESULTS**

Reintroduction monitoring took place in 2021 and 2022 for the two areas in the PVNP that Palos Verdes Blue Butterfly (PVB) were released in 2020. The PVB coalition decided that the habitat at Alta Vicente Reserve and Filiorum Reserve exhibited adequate habitat for releases in April of 2020, after site visits to various historical PVB locations. 2022 surveys were a relative success due to the observation of one free-flying PVB in the Alta Vicente Reserve as well as several PVB's post March/April 2022 releases. Abalone Cove was chosen as a third release location after exhibiting adequate habitat to potentially sustain PVBB. Surveys will continue in 2023 and will include this new third location.

One reintroduction of covered species of plants also occurred. *Crossosoma* was introduced into the Abalone Cove Phase 2 restoration area. Previous reintroductions to Alta Vicente Phase 3 and 4 continue to thrive and plants have produced seed in 2021 and 2022. More *Crossosoma* is planned for installation at Abalone Cove. Outside of the PVNP, *Crossosoma* has been planted at the White Point Nature Preserve.

### **4.4 COVERED PROJECT/ACTIVITY TRACKING**

Section 9.3.1 of the NCCP/HCP requires that habitat annual tracking take place accounting for acreage, type, and location of habitat and species conserved or lost within the Plan Area. PVPLC provided monitoring and consultation for 31 projects in 2022. Three of those 31 projects were expected to have impacts to the habitat and were completed in the reporting period for this report. City staff and PVPLC continued to work on updating a Preserve Project Form for any projects occurring within the preserve. The form includes a comprehensive summary of the NCCP/HCP covered species regulations and minimization measures for covered projects and activities that serves as a guide for anyone completing projects in the preserve. PVPLC and RPV staff coordinated site visits with all parties proposing projects in the preserve and assisted in filling out the form where needed. Minimization of biological resource impacts were discussed at every meeting and most projects were able to avoid any impacts. Continued communication and coordination is essential for impact minimization for projects. PVPLC and RPV staff also present the Preserve Project Form and explain preserve rules at quarterly Peninsula Project Coordination Meetings. All impacts are documented in Table 6 and in the RPV NCCP Habitat Loss Tracking table containing information through 2022 in Appendix C.

In September of 2022, Southern California Edison proposed a project to maintain a power pole located within the preserve and within a restoration site. Although no habitat impacts were anticipated as part of the project and various site visits were had with PVPLC and City

representatives, subsequent monitoring showed that various plants had been damaged as part of the project. A total of .06 acres were damaged and may be considered temporary impacts. According to the NCCP/HCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and riparian habitat. The measured area of impact is 0.06 acres of therefore the resulting restoration required is 0.12 acres of CSS/Riparian habitat.

In October of 2022, as part of a Fuel Load Reduction project, a contractor damaged native plants to gain access to non-native species populations. The damage was not pre-approved by PVPLC and PVPLC is working to mitigate the issue. The damage is expected to be temporary since no plants were removed and the extent of the damage included broken branches and stems which are expected to regrow. The area of damage was 600 sq. ft. (.01 acres) and according to the NCCP/HCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and riparian habitat. The resulting restoration required is 0.02 acres of CSS/Riparian habitat.

In November of 2022, various sections of Cal Water's main line pipe broke throughout the Portuguese Bend Preserve. As part of emergency repairs and to access the breaks, Cal Water had to clear habitat in three sections along Burma Road trail. A total of 703 square feet (.02 acres) of Coastal Sage Scrub was impacted. Local species seeding is recommended along with non-native species removal. According to the NCCP/HCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and riparian habitat. The measured area of impact is 0.02 acres of therefore the resulting restoration required is 0.04 acres of CSS/Riparian habitat. Further conversations need to continue with Cal Water to understand if problem sites will need to continue to be accessed for maintenance monitoring to avoid future pipe breaks.

**Table 6. Habitat Impacts in the PVNP in 2022**

<b>Date</b>	<b>Project</b>	<b>Impact</b>	<b>Location and Vegetation Type</b>	<b>Size</b>
September 2022	SCE Burma Pole Maintenance	Habitat Damage to access pole	Coastal Sage Scrub	.06 acres
October 2022	Fuel Load Reduction	Habitat Damage to access non-native species	Coastal Sage Scrub	.01 acres
November 2022	CalWater Burma Road pipe breaks	Habitat damage to repair breaks	Coastal Sage Scrub/Riparian	.02 acres

## 5.0 UTILITY AND CONTRACTOR ACCESS

Protocols are currently in place to ensure that utilities and contractors accessing the Preserve follow guidelines to implement minimization measures and remain on permitted trails to avoid damaging the habitat. PVPLC continues to collaborate with the City to create more effective protocols and outreach techniques. For example, a Preserve Project Form helps communicate all aspects of contractor, City, and PVPLC projects that are planned to take place in the preserve. Additionally, a Preserve Access Protocol will be developed to address where authorized vehicles may travel in the Preserve. The City also hosts quarterly Peninsula Project Coordination Meetings to receive updates on upcoming projects throughout the City and provide reminders for protocols to follow while conducting work in the Preserve. The Preserve Project Form is presented at the Peninsula Project Coordination Meetings and sent out to the participating agencies.

## 6.0 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS

The Targeted Exotic Removal Program for Plants (TERPP) is an element of the Preserve Habitat Management Plan for the NCCP/HCP that requires the annual removal of exotic plant species of twenty individual populations or five acres in the Preserve. The TERPP provides a protocol for ranking the degree of threat to native vegetation, the feasibility of eradication, and the invasiveness of each exotic species found in the Preserve. Populations of exotic plant species are then targeted for removal based on the results of the ranking outcome.

In 2022, PVPLC met the objectives for the TERPP program by treating 12.7 acres of *Acacia cyclops* (Coastal Wattle) at two locations in the Palos Verdes Nature Preserve. Mowing of the highly invasive *Brassica nigra* (Black Mustard) also took place at one location totaling 5.5 acres. *Acacia* seeds can persist in the soil for an indefinite amount of years, and treatment needs to be repeated for several years to successfully control these species on the Preserve. *Acacia* are very serious invasive species, and their expansion in the Preserve must be controlled. Therefore, many of the TERPP sites will be treated for many years under the same site name. Several areas treated for *Acacia* in previous years were also visited and seedlings were hand pulled.

All of the populations previously targeted by TERPP continue to be monitored yearly for new germination or regrowth. The species targeted by TERPP tend to have long lived seedbanks and also tend to regrow without stump treatments. Continued monitoring of all known populations will continue into the indefinite future to minimize the return of targeted exotic species to those locations and to achieve eradication.

The full details of the TERPP accomplishments for 2022 can be found in Appendix D.

## 7.0 FUEL MODIFICATION

Fuel modification is the clearing or thinning of vegetation in areas that occur immediately adjacent to residential structures and roads as mandated by County Department of Agriculture Weights and Measures. As land owner, the City is responsible for brush clearance within the Preserve (with the exception of Lunada Canyon owned by PVPLC), to provide an appropriate level of fire protection, emphasizing the protection of public safety in the urban-wildlife interface areas while minimizing environmental impacts of fire suppression and control. PVPLC has collaborated with RPV to develop clear protocols to ensure that Best Management Practices for natural resource protection associated with fuel modification activities are consistently followed.

In 2022, RPV staff continued to successfully collaborate with PVPLC to ensure that bird surveys were completed prior to fuel modification activities and sensitive habitat areas were avoided. Stewardship Associate Biologists, Austin Parker and Olivia Jenkins and Conservation Director, Cris Sarabia, worked with RPV to establish clear nesting bird survey and reporting protocols. All sites that had observed nesting birds within the Fuel Modification Zone or within an NCCP/HCP determined buffer area (300 ft for nesting birds and 500 ft for nesting California gnatcatchers and cactus wrens), were postponed until after the bird breeding season (February 15<sup>th</sup> – August 31<sup>st</sup>) or once the nest is confirmed no longer in use by a certified biologist. During the bird surveys, any natural resource concerns, including animal dens or rare plants, were flagged and the city was notified in each report. Maps of each site with GPS coordinates of any concerns were provided in each report.

The 20-acre Lunada Canyon property located within the larger Agua Amarga Reserve is owned by PVPLC, which maintains brush clearance requirements. All of these requirements were met throughout 2022. No other fuel modification areas within the Preserve fall under the responsibility of PVPLC.

As of the writing of this report, expanded fuel modification as mandated by the County Department of Agriculture Weights and Measures is being determined for the city owned properties. Any new fuel modification zones and/or impacts will be assessed and reported in future annual reports.

## 8.0 COMMUNITY SCIENCE AND EDUCATION

The Preserve is an ideal setting for an outdoor laboratory because it provides scientists and students with access to a variety of habitat types and wildlife. Student research topics are often chosen to answer questions informing improved restoration practices and to better understand the local ecology. Community Science volunteer programs assist the PVPLC with annual monitoring of the presence and abundance of cactus wren and mesopredators (coyote, grey fox and red fox) as part of the NCCP/HCP Predator Control program. A report of 2022 research projects and community science monitoring programs is located in Appendix E.

## 9.0 TRAIL MANAGEMENT AND MONITORING

### 9.1 PRESERVE TRAILS PLAN

The Preserve Trails Plan is a part of the City's Public Use Master Plan (PUMP), which is a NCCP/HCP-covered activity, and must follow certain avoidance measures and guidelines to protect covered species. The RPV City Council approved the latest version updates of PUMP in March 2013 after the designation of trails in Filiorum Reserve. A revision to the PUMP is required in order to adopt trail alignment and user designations for Malaga Canyon Reserve, and incorporate other changes including the Preserve Access Protocol and other minor trail amendments. It is anticipated that the PUMP may be revised and updated in summer of 2024 with public input and City Council approval. Trail designations for the newly acquired Lower Filiorum, Dorothy and Allen Lay and Jacqueline M. Glass Family Reserves may also be addressed in this revision.

### 9.2 TRAIL MANAGEMENT

PVPLC continues to pause on printing trail maps since major changes have occurred to parking rules and trails have been temporarily closed due to land movement activity. Maps will need to be assessed and language revised for any future reprinting. Recently, QR codes were installed at brochure boxes to provide a quick link to the maps on a personal device. PVPLC will also explore, in coordination with the City, the possibility of a mobile app in the future will allow for accurate navigation on the trails in the future. PVPLC regularly refreshes carsonite signs and decals in the Preserve to better delineate trails and provide a positive user experience. A full-time PVPLC field operations specialist focuses on unauthorized trail closure, trail delineation, graffiti removal and general trail maintenance as well as assisting on Volunteer Trail Crew and leading Rapid Response projects. With the help of the Volunteer Trail Watch, a weekly report is submitted to staff, where tasks are prioritized and addressed on the Preserve. The following represent PVPLC's accomplishments in 2022 for trail management:

Area Closed Signs Installed	2 signs
Decals Replaced	125 decals
Graffiti Removed	22 locations
New/Repaired Carsonite Markers	7 markers
Trail Maintenance Projects(Brush/Weed Clearance)	389 projects
Spur Trail Closures (New/Old)	29 closures
Trail Crew Events (Maintenance Projects and Classes)	13 events
Rapid Response Volunteer Days	66 events



With support of grants from Habitat Conservation Fund (HCF), PVPLC worked with the City of Rancho Palos Verdes to design a master plan for Preserve signage to include designs for primary trailhead markers, interpretive panels and regulatory signage (Appendix F). The signage plan was approved by City Council in July 2016. In 2017, the Los Angeles County Regional Parks and Open Space District provided funds to implement the new Preserve signs at Alta Vicente Reserve and HCF funded signs at Portuguese Bend Reserve and Agua Amarga Reserve. In 2018, signage was installed at Vicente Bluffs, Vista del Norte and San Ramon Reserves and in 2019, signage was installed at Filiorum, Forrestal and Three Sisters Reserves. In 2020, signage was installed at Malaga Reserve and Ocean Trails Reserve. In 2022, additional signage was installed at Ocean Trails Reserve and Forrestal. A damaged sign was also replaced at Vista Del Norte.

### 9.3 UNAUTHORIZED TRAIL CLOSURES

Implementing the Preserve Trails Plan involves closing many social trails that were previously in use and are no longer authorized in the PUMP. PVPLC's priorities are to close newly created unauthorized trails before they become established and damage habitat. PVPLC has also developed techniques to reduce trail widening, particularly at trail intersections. Maintaining closures of unauthorized trails is intensive work, which requires continuously reinforcing and replacing trail closures when signage, branches, and plants are removed or damaged. Rapid Response Team volunteers assist staff in maintaining closures by reclosing sections on a weekly basis. Additionally, the Volunteer Trail Watch, OSM and City Rangers assist with some of these tasks when they encounter them.

In 2022, focal areas were Abalone Cove Reserve (Olmstead Trail, Cliffside Trail, and Chapel View Trail); Alta Vicente Reserve (Alta Vicente Trail, Prickly Pear Trail and North Spur Trail); Filiorum Reserve (Pony Trail, Kelvin Canyon Trail, and Zotes Cutacross Trail); Forrestal Reserve (Flying Mane Trail, Dauntless Trail and Quarry Trail); Portuguese Bend Reserve (Ishibashi Trail, Peacock Flats Trail, Garden Trail, Barn Owl Trail, and Sand Box Trail ); San Ramon Reserve (Marymount Trail and Switchback Trail) and Three Sisters Reserve (Barkentine Trail and Three Sisters Trail) (Appendix F).



## **9.4 TRAIL REPAIR**

The PVPLC Volunteer Trail Crew assists in much of the trail work on the Preserve. A complete summary of the PVPLC Volunteer Trail Crew Program's accomplishments can be found in the Volunteer Involvement section of the report (Appendix G). PVPLC staff or RPV staff including Open Space Management, Recreation and Parks, and Public Works personnel were also involved in trail enhancements and monthly coordination and prioritizing meetings occur between all groups. Trail projects that may be completed in the future, based on available resources, are listed in Appendix F.

## **9.5 TRAIL MONITORING**

PVPLC stewardship staff and volunteers from the Volunteer Trail Watch (VTW) Program conducted trail monitoring to educate trail users and to report maintenance and safety issues to City and PVPLC staff during the reporting period. The mission of the Palos Verdes Nature Preserve Volunteer Trail Watch Program is to serve as eyes and ears of the City and the Palos Verdes Peninsula Land Conservancy with a focus on 1) protecting the natural resources of the Palos Verdes Nature Preserve, including the flora and fauna as well as the geology, topography and scenic landscape, and 2) enhancing the safety of, and promote an enjoyable experience for all Preserve visitors. Volunteers educate the public about Preserve rules and etiquette; and enter observations of infractions into a web portal (i.e. dogs off leash, off-trail activity, user on non-designated trail, etc.) to allow enforcement personnel and Preserve managers to track time and location of these activities. In 2022, volunteers dedicated 3,292 hours to the program through training and field implementation activities, and reporting observations through the web portal for record keeping. Additional details of the VTW program are described in detail in the Volunteer Annual Report section of the report (Appendix G).

In 2018, PVPLC was awarded a California Department of Fish and Wildlife Local Assistance (LAG) Grant. The grant supports the implementation of the Trail Baseline Monitoring Program required by the NCCP/HCP to monitor and manage trail widening impacts to habitat. The initial tasks of the grant were started in 2019 and were completed by the end of 2020 with a report being submitted in 2021. The report is be available in the Comprehensive Management and Monitoring Report for 2019 – 2021.

## **9.6 SUMMARY OF NIGHTTIME USE**

The City of RPV grants permission for night hikes in the Preserve with preapproved routes. In 2022, 12 night hikes were permitted with a total of 178 attendees and a detailed list can be found in Appendix I.

## **9.7 PUBLIC USE IMPACTS AND RECOMMENDATIONS**

Continued spur trail creation is a major concern especially during bird breeding season and when they occur in high quality habitat areas or near documented NCCP/HCP covered species. The PVPLC Field Operations Specialist (FOPS) is a full time position that addresses many of the reported issues in a timely manner alongside with the Rapid Response program and RPV's Open Space Management Division. Continued support for these staff positions and programs is essential in addressing issues before they become long term and irreversible problems. The FOPS position is reactive to problems while the Volunteer Trail Watch, being proactive, attempts to educate users about Preserve rules before issues occur. The RPV Park Rangers enforce the rules with warnings and citations as needed. It is recommended that these groups continue to be fully staffed and provided the resources needed to minimize public use impacts with their combined efforts. Continued coordination, communication and planning in the VTW bimonthly meetings is essential so that target areas are addressed and impacts are minimized. It is also recommended that regulatory and informational signage continue to be maintained and repaired of any vandalism. New locations for regulatory signage should also be identified where needed while old signs that are no longer needed be removed.

## **10.0 VOLUNTEER INVOLVEMENT**

PVPLC is a non-profit organization that relies heavily on the support of community involvement to perform many of the tasks necessary to manage the Preserve. In 2022, volunteers provided a grand total of 19,372.47 hours of service to support conservation, restoration and management of the Palos Verdes Nature Preserve. This represents a 20.5% increase over 2021. According to the Independent Sector, volunteer time in California is valued at \$35.56 per hour (based on Dollar Value of a Volunteer Hour, by State: 2021, Independent Sector), thus generating a total of \$688,885 of in-kind services. The 2022 Volunteer Annual Report detailing the volunteer programs is located in Appendix G.

## **11.0 CONTRIBUTIONS TO PRESERVATION**

In 2022, a 96 acre parcel of natural land located adjacent to the Palos Verdes Nature Preserve, historically known as Plumtree and Lower Filiorum was acquired. Funds to purchase the land were awarded from U.S. Fish and Wildlife (\$12.6 million), Wildlife Conservation Board (\$4.8 million), City of Rancho Palos Verdes (\$1.3 million), Palos Verdes Peninsula Land Conservancy (1.3 million) and Los Angeles County Regional Park and Open Space District (\$1 million). The newly acquired parcel had been designated in the NCCP/HCP as important private land to add to the PVNP and creates an ecological crucial contiguous wildlife corridor between several reserves.

## 12.0 EVALUATION OF MANAGEMENT ACTIVITIES

In the 2006 initial Management and Monitoring Report for the NCCP/HCP, potential threats and disturbance factors were identified for each NCCP/HCP covered species occurrence. This section gives recommendations for any improvements needed to be made to current management or enforcement activities in order to ensure long-term sustainability of Covered Species and their habitats.

Threats/disturbance factors that were identified in the 2006 initial Management and Monitoring Report for the NCCP/HCP-covered plants species include trails/trampling, invasive plants, erosion (coastal bluff and canyon), and herbivory. NCCP/HCP-covered wildlife species threats/disturbance factors include trails, invasive plants, proximity to houses, parks, or other developed areas, potential for predation from feral cats and red fox, potential nest parasitism from brown headed cowbirds, and agricultural or disking activities. A summary of management recommendations that have been implemented and improvements that can be made are listed below:

*Trails:* The initial plan recommends that trails not appropriate for the Preserve be closed following recommendations set in the Public Use Master Plan (PUMP). Following the PUMP document, redundant and unauthorized trails have been closed and continue to be monitored for use. Appropriate signage and trail restorations have been implemented and assessment and monitoring continues for future unauthorized closure projects. Continued education of the public on authorized trail use is recommended as well as rules enforcement from rangers.

*Invasive Plants:* The initial plan recommends the removal of invasive plant species in accordance with the TERPP and Habitat Restoration Plan since invasive plants pose a substantial threat to the integrity of the native vegetation communities of the PVNP. The TERPP program continues to be implemented throughout the year, controlling and eradicating invasive plant populations, while invasive species control occurs within all restoration project sites and surrounding buffer areas. PVPLC continues to pursue funding opportunities to go above and beyond in invasive species removal, control and eradication. Staff continues to monitor and document new occurrences of invasive species within the PVNP and surrounding areas. Volunteers assist with invasive species control where appropriate.

*Erosion:* The initial plan documented coastal bluff erosion throughout the PVNP. While the majority of coastal bluff erosion was naturally occurring, some of the erosion problems were a consequence of unauthorized unstable coastal bluff trails. Recommendations were to establish replacement trails, removing invasive species on coastal bluffs, installing check dam or weirs and revegetating eroded slopes. PVPLC and the City have worked on a variety of projects to address all recommendations and continue to monitor for erosion issues throughout the PVNP, especially after rain events. In addition, trail delineation has been implemented in targeted areas to keep trail users away from erosive trails.



*Herbivory:* The initial plan recommends continued monitoring of this potential threat. As part of the Wildlife Tracking program and the Wildlife Camera Remote Monitoring project, rabbits and other mammals are documented. No rabbit population increases have been observed in the PVNP. PVPLC will continue to document rabbits, monitor covered plant species, and monitor transects in restoration projects for impacts due to herbivory. In addition, caging around new plantings has been implemented in certain areas to limit herbivory until plants reach maturity. This tactic can be implemented for covered plant species if impacts are observed.

*Proximity to Houses, Parks, and other Developed Areas:* The 2006 report recommends that edge effects due to proximity to houses, parks and other developed areas be monitored over the long term to determine if they are problematic and if so, to document where the problems are occurring. As part of PVPLC's annual Easement Monitoring, these edge effects are documented, and reported to the appropriate city department for follow up. PVPLC will continue to monitor for edge effects.

*Potential Predation from Feral Cats and Red Fox:* A Predator Control Plan was developed in accordance with the NCCP/HCP. Monitoring for red fox and feral cats continues and those occurrences are documented and reported in Triennial Comprehensive Report along with recommendations for predator control.

*Potential Nest Parasitism by Brown-Headed Cowbird:* Ongoing monitoring for cowbirds has continued throughout the Preserve as part of the Predator Control Plan. No cowbirds have been observed within this reporting period.

*Agricultural Land and Disking:* Only one location of permitted agricultural land was operating within the PVNP in 2022. PVPLC had coordinated throughout the year with the operator to minimize disturbance to covered species and to determine whether or not they are a source of non-native, invasive plant species. They were not determined to be a source and work cooperatively with PVPLC. As of August 2022, the Hatano Farm lease was not renewed. PVPLC will continue to work with the city to ensure that the future use of the farm land aligns with the threats/disturbance factors that were identified in the 2006 initial Management and Monitoring Report. A Cactus Wren territory was documented within the permitted agricultural land and PVPLC plans to include that location in its monitoring and make any recommendations as needed. Disking has been phased out as a fuel modification tool within the preserve and current weeding techniques include grazing or mechanical removal and are monitored to limit disturbance and invasive species spreading into the preserve

## **12.1 EVALUATION OF ENFORCEMENT ACTIVITIES**

In 2019, the City of RPV created a Park Ranger program which replaced the Lomita Sheriffs contract for patrolling the preserve. Park Rangers patrol the PVNP and educate users on the

proper use of the Preserve. In addition they are able to cite user infractions as needed. In 2022, there were 29,491 public contacts made (Rangers only), 1,694 parking citations, 40 notices to appear and 128 hotline calls to the Preserve Information and Reporting Hotline. It is recommended that Park Rangers continue to work with PVPLC to target areas of concern where covered species have the greatest threats of impact. Along with rangers being educated on the biological resources at stake, continued communication is key in limiting any irreversible impacts.

## **12.2 EVALUATION OF FUNDING NEEDS**

PVPLC continues to apply for funding from federal, state and private sources to assist in the management of habitat and species on the Preserve. Some of the focus areas for funding needs include invasive species removal, fuel load reduction, covered species monitoring and enhanced research, and restoration of current and historical covered species locations.

## **12.3 EVALUATION OF ABILITY TO ACCOMPLISH RESOURCE MANAGEMENT GOALS**

PVPLC, City staff and Wildlife Agency representatives brought the draft NCCP/HCP before the Rancho Palos Verdes City Council in November 2019, and the City Council adopted the document. Wildlife agencies have issued federal permits while the state permit is pending. State and Federal wildlife agency permits are needed in order to give take authorization to the City to conduct projects in the NCCP/HCP area and Preserve.

PVPLC has been successful at completing restoration under the NCCP/HCP, monitoring NCCP/HCP covered species, and meeting the goals for targeted invasive plant removal. With the start of the Abalone Cove Restoration project at the end of 2019 and the continued maintenance of the previous restoration projects, more contiguous high quality habitat will be available throughout the Preserve. PVPLC will continue to assess and choose a new restoration project site in 2023 so that planning and funding can begin. Working alongside with the city, PVPLC also recommends the evaluation of areas where more Acacia can be removed and where dry mustard and non-native grasses can mowed to enhance native habitats in order to support the natural recovery of covered species.

Concerns about habitat damage in the future continue to include the ability to successfully close unauthorized trails and to prevent new trails from being created. Closing unauthorized trails is time consuming and expensive because of continuous vandalism, drought conditions, and repeat use by a limited number of individuals. PVPLC is taking information collected by staff and the VTW to coordinate with City of RPV staff, and city rangers to help determine which areas need more enforcement and maintenance attention. This combined approach will prove to be effective in limiting impacts to the preserve.

### 13.0 SUMMARY OF CLERICAL CHANGES AND CHANGES TO MONITORING/REPORTING

No clerical changes or changes to monitoring/reporting have been made to the NCCP/HCP.

### 14.0 PALOS VERDES PENINSULA LAND CONSERVANCY BOARD AND STAFF

#### 2022 Board Officers

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Rick Wallace, Executive Vice President  
Diana Bailey, Secretary  
Bruce Ross, Treasurer

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##### Office Administration

Jill Wittman, Administrative Assistant

##### Education Program

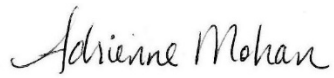
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Eloise Mitchell-Smith, Naturalist

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Olivia Jenkins, Stewardship Associate  
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Caleb Rodriguez Mezen, Field Operations Specialist  
  
Hugo Morales, Stewardship Technician Lead  
Humberto Calderon, Stewardship Technician  
Neli Gonzalez, Nursery Technician Lead

## 15.0 REPORT CERTIFICATION STATEMENT

I certify under penalty of law that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.



Adrienne Mohan  
Executive Director

City Official  
City of Rancho Palos Verdes



# **APPENDIX A**

## **ABALONE COVE RESTORATION PLAN**



Habitat Restoration Plan for the

# Abalone Cove Ecological Reserve in the Palos Verdes Nature Preserve



FEBRUARY 2016

PREPARED BY:



**Palos Verdes Peninsula  
Land Conservancy**  
916 Silver Spur Road, Suite 207  
Rolling Hills Estates, CA 90274

and



**Dudek**  
605 Third Street  
Encinitas, CA 92024



**HABITAT RESTORATION PLAN**  
**for the**  
**Abalone Cove Reserve**  
**in the**  
**Palos Verdes Nature Preserve**

*Prepared for:*

**Palos Verdes Peninsula Land Conservancy**  
916 Silver Spur Road, Suite 207  
Rolling Hills Estates, California 90274  
*Contact: Danielle LeFer*

*Prepared by:*

**DUDEK**  
605 Third Street  
Encinitas, California 92024  
*Contact: Andy Thomson*  
*760.479.4282*

**FEBRUARY 2016**





# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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# **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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## **1 INTRODUCTION**

This Habitat Restoration Plan (HRP) was prepared for the Abalone Cove Reserve within the Palos Verdes Nature Preserve (PVNP) located in the City of Rancho Palos Verdes, California (Figures 1 and 2). The Abalone Cove Reserve is one of ten ecological reserves within the approximately 1,400-acre PVNP. The PVNP is owned by the City of Rancho Palos Verdes and managed by the Palos Verdes Peninsula Land Conservancy (PVPLC).

This HRP discusses implementing restoration of approximately 3.5 acres of coastal sage scrub, 1.1 acre of cactus scrub, 0.2 acre of mulefat scrub, and the enhancement of approximately 8.3 acres of mixed coastal scrub in a disturbed area of the Abalone Cove Reserve. Portions (approximately 2.2 acres) of the habitat enhancement area were identified for planting additional cactus. The HRP addresses restoration design, planting recommendations, installation procedures, maintenance requirements, monitoring methodology, and performance standards.



**Habitat Restoration Plan for the Abalone  
Cove Reserve in the Palos Verdes Nature Preserve**

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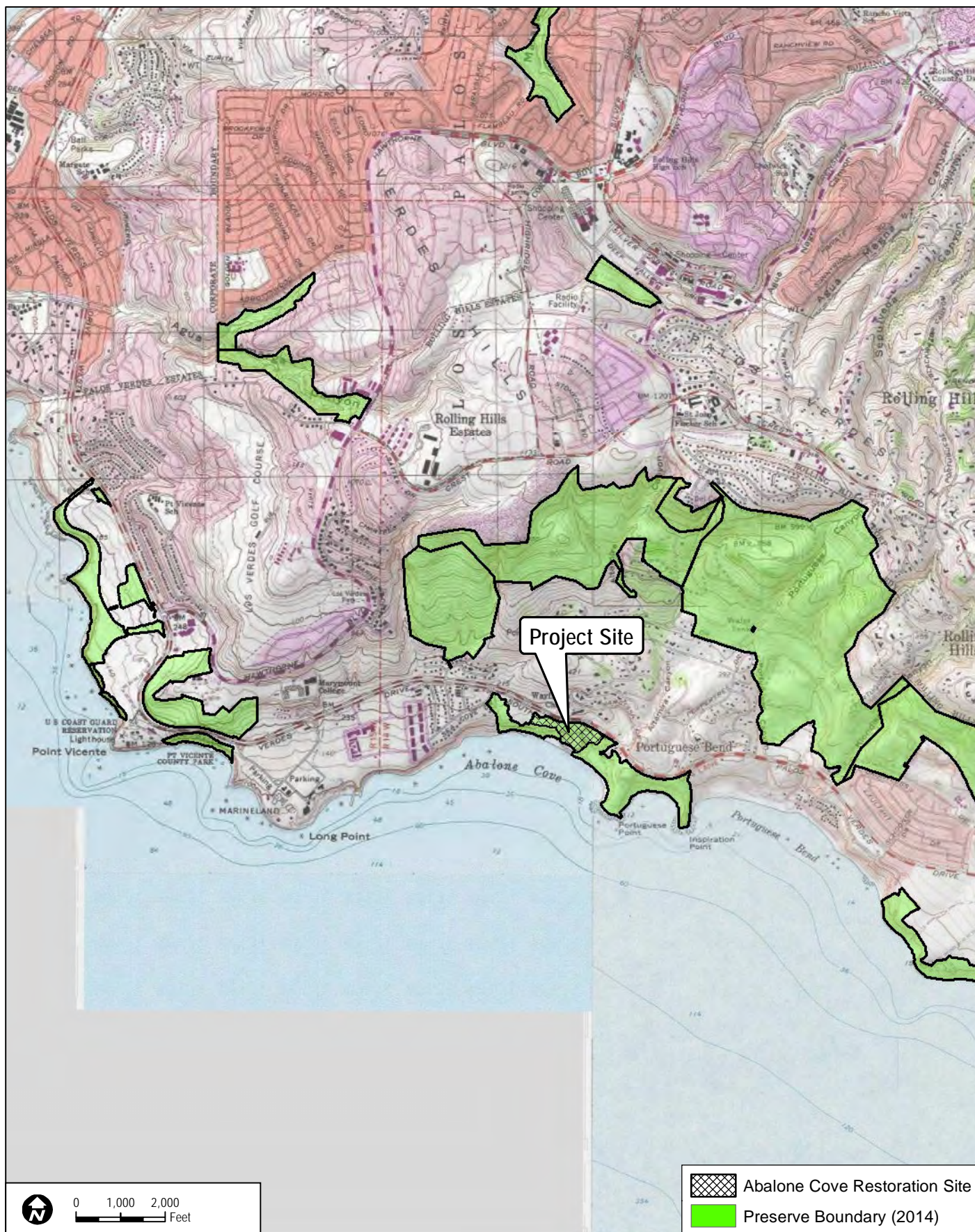


## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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**FIGURE 2**  
**Vicinity Map**

Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend Nature Preserve

**DUDEK**

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## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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## 2 EXISTING CONDITIONS

### 2.1 Site Description

The Abalone Cove Reserve is located on the southern portion of the Palos Verdes Peninsula. The entire Abalone Cove Reserve is approximately 64 acres and is located south of Palos Verdes Drive South along the shoreline of the peninsula. There are two promontories, Portuguese and Inspiration Points, which bound the cove within the Abalone Cove Reserve. The proposed restoration area is located upslope from the Portuguese Bend Nursery School (Beach School) in the central part of the reserve.

### 2.2 Vegetation Communities

Plant communities and land covers within the Abalone Cove Reserve are typical of plant communities found in this region, exhibiting various levels of disturbance, but containing elements of the native plant communities. Vegetation mapping of the reserve was prepared by the PVPLC and the California Native Plant Society (CNPS) (PVPLC and CNPS 2010). According to the vegetation mapping conducted by PVPLC and CNPS, the proposed restoration area consists of California coastal sage scrub, mixed coastal scrub, and non-native grassland, comprised of several subtypes (e.g., alliances and associations). The existing vegetation communities present in the restoration/enhancement area are described below.

#### 2.2.1 Coastal Sage Scrub

The coastal sage scrub on site was mapped by CNPS as *Encelia californica* association, *Encelia californica* alliance, *Encelia californica-Artemisia californica* association, and *Rhus integrifolia* (strongly dominant) association (PVPLC and CNPS 2010). Coastal sage scrub is composed of low, subshrubs approximately 1 meter (3 feet) high, many of which are facultatively drought-deciduous (Holland, 1986). Dominant shrub type varies across this vegetation type, depending on localized factors and levels of disturbance, but often includes California Sagebrush (*Artemisia californica*) and California Brittlebush (*Encelia californica*). In this community the shrub layer primarily forms a continuous canopy, but there are areas with a more open canopy, widely spaced shrubs, and fairly well-developed understory. Within the site non-native species, including black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), wild oat (*Avena barbata*, *A. fatua*) and other non-native grasses have invaded the coastal sage scrub community.

## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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### 2.2.2 Mixed Coastal Scrub

The mixed coastal scrub on site was mapped by CNPS as disturbed *Rhus integrifolia* association, and urban trees (PVPLC and CNPS 2010). Though these areas are dominated by lemonadeberry (*Rhus integrifolia*) they are disturbed and contain many non-native shrubs and trees, including coastal wattle (*Acacia cyclops*) spiny holdback (*Caesalpinia spinosa*), and Phoenix palm (*Phoenix canariensis*).

### 2.2.3 Non-native Grassland

Non-native grassland within the project site was mapped by CNPS as cleared land, and California annual and perennial grassland macrogroup (PVPLC and CNPS 2010). Non-native grassland is typically characterized by dense to sparse cover of weedy, introduced annuals including wild oat, brome grasses (*Bromus diandrus*, *B. madritensis*, *B. hordeaceus*) and black mustard. Annual grassland often occurs in areas where there has been some historic disturbance to the natural community. At the proposed restoration site, non-native grassland is heavily dominated by wild oat, brome grasses, black mustard, fennel, tocalote (*Centaurea melitensis*), and false brome (*Brachypodium distachyon*).

## 2.3 Geology and Soils

The Palos Verdes Peninsula is primarily an old marine terrace with relatively steep eroded canyons which drain southwesterly into the Pacific Ocean. The underlying geologic material consists of marine sedimentary and basaltic rocks. The area is seismically active, with active Palos Verdes and San Pedro fault zones that have caused the peninsula to uplift relative to the adjacent Los Angeles Basin and the offshore bedrock.

According to the Report and General Soil Map for Los Angeles County (USDA 1969), the soils within the Abalone Cove Reserve are composed of the Altamont-Diablo association (30–50% slopes). Soils of the Altamont-Diablo association occur on gently sloping to rolling foothills throughout the Los Angeles basin as far north as Point Dume. The Altamont-Diablo association is comprised of approximately 60% Altamont soils and 30% Diablo soils. Diablo soils are described to be 22–52 inches deep, are well drained, and have slow subsoil permeability. Altamont soils are described to be 24–36 inches deep, are well drained, and have slow subsoil permeability. They have dark brown, neutral, clay surface layers about 12 inches thick underlain by a brown, calcareous clay subsoil.

The proposed restoration area is primarily a terrace above the coastal bluffs. The terrace appears to have been used for agriculture in the 1950's and 1960's, but has lain fallow for several decades. Three soil samples were collected from the proposed restoration area. The soil samples

## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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were collected from three areas proposed for restoration (Figure 3). Each of the soil samples was composed of 3-4 subsamples consisting of the 12-16-inch deep soil profile from each location to create a composite soil sample for analysis. The composite soil samples are representative of the general soil conditions on site within the rooting zone of the target plant species. The soil samples were submitted to Wallace Laboratories for analysis of standard soil constituents, agricultural suitability, texture, and cation exchange capacity. The results of the analysis show that, the soils are clay, with a slow/fair infiltration rate and fair organic matter (Appendix A). The soils on site are slightly alkaline (pH = 7.69-7.76) and the salinity is low (ECe = 0.44-0.72). Major nutrients (nitrogen and phosphorus) are low.

Plant establishment is not expected to be significantly inhibited due to the soil chemistry described above. The soils appear to be suitable for the establishment of the target habitats without soil remediation or extensive soil amendments. However, container plants may struggle to become established and grow healthfully without supplemental watering, and amendments may be necessary if plants are struggling to become established. While the soils on site pose no significant problems to establishment of native habitat, as native soils they have low levels of major nutrients. Native species are adapted to lower nutrient soils, but will benefit from some supplemental nutrient augmentation during planting to initiate establishment (e.g., slow-release fertilizer packet).

### 2.4 Special-Status Species

Two special-status wildlife species have been documented within or nearby the restoration and enhancement areas. Coastal California gnatcatcher (*Poliophtila californica californica*) (CAGN) and the cactus wren (*Campylorhynchus brunneicapillus*) (CAWR) have been observed in the coastal sage scrub enhancement area, as well as on the southern border of the coastal sage scrub restoration area (PVPLC 2012) (Figure 3).

No special-status plant species have been documented within the specific area identified for restoration in the HRP. However, four special-status plant species have been documented nearby, including aphanisma (*Aphanisma blitoides*), south coast saltscale (*Atriplex pacifica*), woolly sea-blite (*Suaeda taxifolia*), and sea dahlia (*Coreopsis maritima*) (Dudek and PVPLC 2007; CNPS 2015). In addition to special-status plant species, the host plant seacliff buckwheat (*Eriogonum parvifolium*) for the federally listed, endangered, El Segundo blue butterfly (*Euphilotes battoides allyni*) is known to occur in the vicinity of the proposed restoration areas. Observation of the El Segundo blue butterfly has not been reported at the Abalone Cove Reserve.



# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

## 2.5 Non-Native Invasive Species

Non-native species are abundant within the area identified for restoration, making up the majority of the existing vegetative cover. Non-native species are also common in the area proposed for enhancement. Controlling non-native species during the plant establishment phase will present a significant challenge, and should be prioritized as the most critical aspect of the maintenance program. The most predominant non-native species observed on-site include black mustard, coastal wattle, spiny holdback, Peruvian pepper, Brazilian pepper, and non-native grasses. These species, as well as additional non-native species observed or expected on site, are provided in Table 1 with their associated rating in the California Invasive Plant Council's (Cal-IPC) Inventory of Invasive Plant Species (2015).

**Table 1**  
**Non-Native Plant Species and Associated Cal-IPC Ratings**

High
<i>Bromus madritensis</i> ssp. <i>madritensis</i> —compact brome
<i>Carpobrotus edulis</i> —hottentot fig
<i>Foeniculum vulgare</i> —fennel
Moderate
<i>Atriplex semibaccata</i> —Australian saltbush
<i>Avena barbata</i> —slender oat
<i>Brassica nigra</i> – black mustard
Moderate
<i>Bromus diandrus</i> —ripgut brome
<i>Centaurea melitensis</i> —Maltese star-thistle
<i>Glebionis coronaria</i> —crowndaisy
<i>Hordeum murinum</i> —mouse barley
<i>Mesembryanthemum crystallinum</i> —common iceplant
<i>Myoporum laetum</i> —myoporum
<i>Pennisetum setaceum</i> —crimson fountaingrass
<i>Euphorbia terracina</i> —Geraldton carnation weed
Limited
<i>Bromus hordeaceus</i> —soft brome
<i>Erodium cicutarium</i> —redstem stork's bill
<i>Marrubium vulgare</i> —horehound
<i>Olea europaea</i> —olive
<i>Phoenix canariensis</i> —phoenix palm
<i>Ricinus communis</i> —castorbean
<i>Salsola tragus</i> —prickly Russian thistle
<i>Schinus molle</i> – Peruvian peppertree
<i>Schinus terebinthifolius</i> —Brazilian peppertree

## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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**Table 1**  
**Non-Native Plant Species and Associated Cal-IPC Ratings**

None
* <i>Acacia cyclops</i> —coastal wattle
<i>Caesalpinia spinosa</i> —spiny holdback
<i>Erigeron bonariensis</i> - asthmaweed
<i>Lactuca serriola</i> – prickly-lettuce
<i>Malva parviflora</i> —cheeseweed mallow
* <i>Melilotus indicus</i> —annual yellow sweetclover
** <i>Pinus</i> sp.—pine
<i>Solanum elaeagnifolium</i> – silverleaf nightshade
<i>Sonchus oleraceus</i> —common sowthistle
* <i>Tropaeolum majus</i> —nasturtium
<i>Yucca gloriosa</i> – Spanish dagger

\* Note that while there are several species on the list that do not have a Cal-IPC rating for the state of California, that some of these species can be locally invasive. Species with an asterisk are considered to be moderately invasive within the region and should be aggressively controlled. The Targeted Exotic Removal Program for Plants (TERPP) provides additional target invasive species (PVPLC 2013) that may occur on-site

\*\* Note that some trees taller than 5 feet will be left in place and not removed. Seedlings and young saplings less than 5 feet tall will be removed.

### 2.6 Additional Considerations

The City of Rancho Palos Verdes has plans for a stabilization project on the walls of the steep, highly eroded canyon on the eastern border of the enhancement area. To allow a buffer for stabilization activities, the enhancement area will leave a buffer of at least 30 feet along the canyon rim, where no enhancement activities will be undertaken.

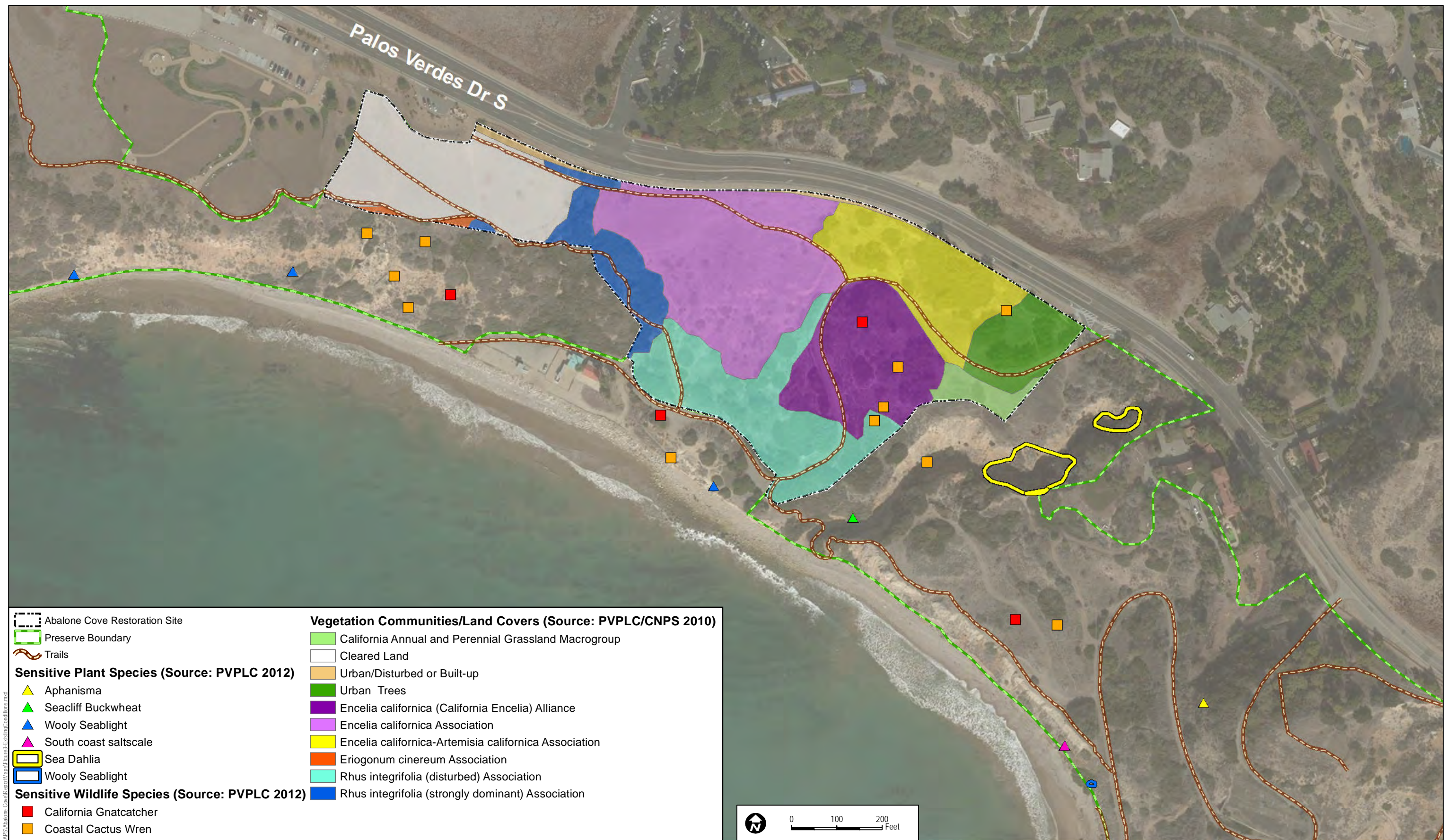
Additionally, two or more electric utility poles intersect the enhancement area in transit to the Beach School. Restoration and enhancement activities will allow a 15 foot buffer around utility poles, allowing only the management and control of particularly invasive species within these zones (i.e., no planting or seeding).

## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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# **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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## **3 RESTORATION PROGRAM**

This HRP outlines the restoration and enhancement implementation strategy for upland habitat at the Abalone Cove Reserve and proposes to provide for the restoration of approximately 4.8 acres of habitat restoration, and the enhancement of approximately 8.3 acres of mixed coastal scrub. This HRP uses a restoration approach that emphasizes the recovery of the degraded ecosystem through planting and seeding to re-establish or enhance biological functions and services within portions of the Abalone Cove Reserve.

### **3.1 Restoration Site Goals and Objectives**

The disturbed and fragmented habitat existing in the proposed restoration and enhancement locations limit the magnitude of potential wildlife use and provide opportunities for the further spread and establishment of invasive weed species in the area. The planting of native coastal sage scrub, cactus scrub, mulefat scrub, and enhancement of mixed coastal scrub will provide contiguous native habitat that includes a mosaic of shrub cover which will resist the invasion of invasive weed species and provide increased nesting, cover, and foraging opportunities for wildlife. In particular, the overarching goal of the restoration program is to provide habitat for coastal California gnatcatcher and the cactus wren.

The habitat restoration program will focus on the creation of habitat for covered species with the objective of increasing the overall habitat carrying capacity for the target species populations. Coastal scrub restoration is intended to provide improved foraging habitat for resident and migrating wildlife species, and potential nesting and foraging habitat for the coastal California gnatcatcher, and other sensitive wildlife species. Achievement of the performance standards described herein would create suitable habitat for these species. However, occupation of the site by these species is not a requirement for successful project completion.

In addition to these broad goals, the following site-specific objectives for the Abalone Cove Reserve restoration site have been incorporated into this HRP in the interest of minimizing adverse impacts to biological resources:

- Avoid additional or unplanned disturbance to existing native habitats during implementation of the project construction and long-term maintenance activities;
- Prevent any impacts to sensitive plant or wildlife species during implementation of the project construction and long-term maintenance activities;
- Control non-native invasive weed species considered to be highly or moderately invasive on the Cal-IPC Invasive Plant Inventory (2015), and others identified by PVPLC as locally invasive (PVPLC 2013);

## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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- Utilize erosion control measures in the form of “Best Management Practices” (BMPs) on the site as conditions necessitate;
- Reintroduce special-status plant species and/or host plants of special-status wildlife species as components of the planting plans where feasible and as appropriate.

### **3.2 Habitats to be Established or Enhanced**

The habitat restoration program consists of site preparation (primarily non-native plant species removal), native planting, seeding, supplemental watering, maintenance, and monitoring. Proposed planting for the target habitat types will focus primarily on the installation of container plants to achieve the project goals. A native seed mix will also be applied as a supplemental measure to increase cover and diversity.

The habitat restoration areas are currently dominated by non-native species. The existing habitat in the restoration areas contains many non-native annual herbs, including black mustard, Russian thistle, and bromes (Figure 4, Photos 1 and 2). Non-native perennials, such as fennel, spiny holdback, Peruvian pepper, and Brazilian pepper also exist within the restoration areas.

Coastal sage scrub habitat will make up the majority of the restored habitat, followed by cactus scrub. Mulefat scrub is planned for approximately 0.2 acre within the restoration area. Each specific habitat type to be restored is described below. It is expected that all planting shall be installed to mimic the natural distribution and vegetation mosaic of adjacent healthy habitats.





**Photo 1:** Representative view of western restoration area (facing west)



**Photo 2:** Non-native plants in the western restoration area (black mustard, brome grasses, Russian thistle)



**Photo 3:** Trail lined by invasive spiny holdback (*Ceanothus spinosa*)



**Photo 4:** Invasive perennial weeds in the habitat enhancement zone (Coastal wattle, Brazilian pepper)



**Photo 5:** Representative view of the eastern restoration area (facing west)



**Photo 6:** Invasive annual weeds in the restoration site (black mustard, wild oat)



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## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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### 3.2.1 Coastal Sage Scrub

The restoration strategy for coastal sage scrub habitat on the Abalone Cove Reserve restoration site includes reintroducing regionally appropriate native coastal sage scrub species that are currently present in adjacent native habitats. The plant palette includes a container plant and seed mix composition (Table 2) that has been designed to replicate the native composition of a healthy coastal sage scrub plant community similar to existing coastal sage scrub habitat present on the Abalone Cove Reserve site, and with the specific intent to provide habitat suitable for occupation by coastal California gnatcatcher. The planting palette has thus been designed to contain a composition of shrub species that are dominant in coastal sage scrub habitat occupied by coastal California gnatcatcher (Atwood et al. 1994). On the Palos Verdes Peninsula, the primary coastal sage scrub dominants include California sagebrush, California brittlebush, and coastal buckwheat, with coast goldenbush, lemonadeberry, California buckwheat, sages, bladderpod, coast prickly-pear, and wishbone bush as common constituents.

The plant palette provides a quantity of container plants (perennial species) that is estimated to establish approximately 75% cover for coastal sage scrub, 60% cover for cactus scrub, and 100% for mulefat scrub once the plants reach maturity. The seed mix is provided to address erosion control and enhance species diversity, and will be applied as needed, and as determined necessary by the PVPLC.

**Table 2**  
**Proposed Coastal Sage Scrub Planting Palette (Approximately 3.5 Acres)**

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Container Plants</i>						
<i>Artemisia californica</i>	California sagebrush	D40	5	5	348	1,220
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean locoweed	D40	3	7	184	645
<i>Baccharis pilularis</i>	Coyote brush	D40	5	3	87	305
<i>Brickellia californica</i>	California brittlebush	D40	5	3	87	305
<i>Corethrogyne filaginifolia</i>	Common sandaster	D40	3	3	24	85
<i>Cylindropuntia prolifera</i>	Coastal cholla	1-gallon	4	5	27	95
<i>Dudleya virens</i>	Bright green dudleya	D40	3	3	24	85
<i>Elymus condensatus</i>	Giant wildrye	D40	6	3	24	85
<i>Encelia californica</i>	California brittlebush	D40	5	5	261	915
<i>Eriogonum cinereum</i>	Coastal buckwheat	D40	5	5	87	305
<i>Eriogonum fasciculatum</i>	California buckwheat	D40	5	5	157	549



## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

**Table 2**  
**Proposed Coastal Sage Scrub Planting Palette (Approximately 3.5 Acres)**

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Eriogonum parvifolium</i>	Seacliff buckwheat	D40	5	5	87	305
<i>Eriophyllum confertiflorum</i>	Golden yarrow	D40	3	3	145	508
<i>Isocoma menziesii</i>	Coast goldenbush	D40	5	3	87	305
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone bush	D40	4	5	54	191
<i>Opuntia littoralis/oricola</i>	Chaparral prickly-pear	1-gallon	6	3	24	85
<i>Peritoma arborea</i>	Bladderpod	D40	5	5	35	122
<i>Rhus integrifolia</i>	Lemonadeberry	D40	15	1	4	14
<i>Salvia leucophylla</i>	Purple sage	D40	5	5	87	305
<i>Salvia mellifera</i>	Black sage	D40	5	3	87	305
<b>Total Container Plants</b>					1,920	6,734
Seed Mix						
Botanical Name	Common Name	Pure Live Seed	Lbs. Per Acre		Total Lbs.	
<i>Eschscholzia californica</i> var. <i>maritima</i>	California poppy	85	2		7	
<i>Lupinus bicolor</i>	Miniature lupine	90	2		7	
<i>Lupinus succulentus</i>	Arroyo lupine	90	4		14	
<i>Stipa lepida</i>	Foothill needlegrass	65	1		3.5	
<i>Stipa pulchra</i>	Purple needlegrass	75	6		21	
<b>Total Lbs.</b>			<b>15</b>		<b>52.5</b>	

### 3.2.2 Cactus Scrub

The restoration strategy for cactus scrub is comparable to that described for coastal sage scrub, except that the composition of species was modified to be dominated by prickly-pear cactus (*Opuntia littoralis*, *O. oricola*). The plant palette includes a container plant and seed mix composition (Table 3) that has been designed to replicate the native composition of a healthy cactus scrub plant community similar to existing cactus scrub habitat present on the Abalone Cove Reserve site, and with the specific intent to provide habitat suitable for occupation by cactus wren. In addition to areas identified for cactus scrub restoration, approximately 2.2 acres of the habitat enhancement area were designated for planting additional cactus. These areas were previously documented to support cactus wren and have since been overgrown with non-native trees and shrubs and lemonadeberry

## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

**Table 3**  
**Proposed Cactus Scrub Planting Palette (1.1 Acres)**

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Container Plants</i>						
<i>Artemisia californica</i>	California sagebrush	D40	5	5	227	249
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean locoweed	D40	3	7	111	123
<i>Brickellia californica</i>	California bristlebush	D40	5	3	52	57
<i>Corethrogyne filaginifolia</i>	Common sandaster	D40	3	3	24	27
<i>Cylindropuntia prolifera</i>	Coastal cholla	1-gallon	4	10	272	299
<i>Encelia californica</i>	California brittlebush	D40	5	5	87	96
<i>Eriogonum fasciculatum</i>	California buckwheat	D40	5	3	174	192
<i>Isocoma menziesii</i>	Coast goldenbush	D40	5	3	35	38
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone bush	D40	4	5	54	60
<i>Opuntia littoralis/ oricola</i>	Coast prickly-pear	1-gallon	6	30	363	399
<i>Peritoma (=Isomeris) arborea</i>	Bladderpod	D40	6	5	36	40
<i>Rhus integrifolia</i>	Lemonadeberry	D40	15	1	2	2
<i>Salvia mellifera</i>	Black sage	D40	5	3	87	96
<b>Total Container Plants (per acre)</b>					<b>1,524</b>	<b>1,678</b>
<i>Seed Mix</i>						
Botanical Name	Common Name	Pure Live Seed	Lbs. Per Acre		Total Lbs.	
<i>Eschscholzia californica</i> var. <i>maritima</i>	California poppy	74	2		2.2	
<i>Lupinus bicolor</i>	pygmy lupine	78	2		2.2	
<i>Lupinus succulentus</i>	arroyo lupine	81	4		4.4	
<i>Phacelia ramosissima</i>	branching phacelia	80	0.25		0.275	
<i>Stipa lepidia</i>	foothill needlegrass	54	1		1.1	
<i>Stipa pulchra</i>	purple needlegrass	42	6		6.6	
<b>Total Lbs. Per Acre</b>			<b>15.25</b>		<b>16.8</b>	

### 3.2.3 Mulefat Scrub

The restoration strategy for mulefat scrub habitat on the Abalone Cove Reserve restoration site includes reintroducing regionally appropriate native mulefat scrub species. A small drainage within the restoration area has been selected as being compatible with mulefat scrub based on the vegetation that currently inhabits the channel and its apparent hydrology. The mulefat scrub restoration area within the Abalone Cove Reserve will contain the native

## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

species mulefat (*Baccharis salicifolia*), giant wildrye (*Elymus condensatus*), and blue elderberry (*Sambucus nigra*) as dominant species (Table 4).

**Table 4**  
**Proposed Mulefat Scrub Planting Palette (Approximately 0.2 Acre)**

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
Container Plants						
Artemisia dracunculus	Tarragon	D40	4	3	136	27
Baccharis pilularis	Coyote bush	D40	5	3	87	17
Baccharis salicifolia	Mulefat	1-gallon	6	3	605	121
Elymus condensatus	Giant wildrye	D40	5	3	174	35
Isocoma menziesii	Coast goldenbush	D40	5	3	87	17
Muhlenbergia rigens	Deergrass	D40	3	3	242	48
Sambucus nigra	Blue elderberry	1-gallon	8	1	102	20
Verbena lasiostachys	Western vervain	D40	3	3	242	48
Total Container Plants ( per acre)					1,675	333
Seed Mix						
Botanical Name	Common Name	Pure Live Seed		Lbs. Per Acre		Total Lbs.
Ambrosia psilostachya	Western ragweed	8		2		0.4
Artemisia douglasiana	Mugwort	5		1		0.2
Eschscholzia californica var. maritima	California poppy	78		2		0.4
Isocoma menziesii	Coast goldenbush	80		1		0.2
Lupinus succulentus	Arroyo lupine	54		2		0.4
Stipa pulchra	Purple needlegrass	42		4		0.8
Total Lbs. Per Acre				12.0		2.4

### 3.3 Habitat to be Enhanced

The habitat enhancement program consists of site preparation (primarily non-native plant species removal), maintenance, monitoring, and potential native planting or seeding. The habitat enhancement area is currently dominated by a mix of native and non-native species. Although the enhancement area currently supports native species, including lemonadeberry (*Rhus integrifolia*) and coast brittlebush (*Encelia californica*), a number of non-native perennials, such as coastal wattle, phoenix palm, spiny holdback, Peruvian pepper, and Brazilian pepper are also common.

## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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Habitat enhancement generally includes control of non-native weed species and reliance on natural succession to fill the gaps left by removal. In the case of the enhancement area in Abalone Cove Reserve it is likely that most locations in the enhancement zone will improve naturally after initial removal of invasive species. However, in locations that a significant area is cleared, in-planting of native species may be necessary. The area north of the access road, nearest to Palos Verdes Drive South in particular may necessitate additional planting after removal activities occur.

The planting palette in Table 2 for coastal sage scrub habitat and Table 3 for cactus scrub provide options for installing supplemental plants in areas that require selective planting to fill in gaps created from invasive species removal. Note that Tables 2 and 3 do not account for the quantity of container plants that will be needed for the enhancement areas, as the acreage of invasive species removal is not known. However, the number of container plants is expected to be relatively low compared to the restoration areas. Selective in-planting shall mimic the natural distribution and vegetation mosaic of adjacent native habitats.

### **3.4 Revegetation Materials**

Plant materials for the restoration planting areas will include container stock and seed of coastal scrub species, as indicated in the plant palettes provided in Tables 2–4. As much as feasible, the container plant materials will be grown from native seed collected on the Palos Verdes Peninsula. The plant nursery will grow the plants primarily in D40 Deepots, with some smaller and larger sizes depending on the species (as indicated in Tables 2–4). Additionally, for the seed mixes, PVPLC will coordinate collection of available seed from the peninsula for application at the restoration site. If some species cannot be grown as container stock at the nursery, or local seed is not available for collection, the planting palettes may be adjusted, or another source may be used for acquiring locally sourced plant materials.

DriWater may also be used to aid plant establishment. DriWater is a time released natural cellulose gum gel that retains moisture which is slowly released into the soil when the gel is broken down by naturally occurring enzymes. The moisture released from the DriWater gel becomes available for uptake by developing plant roots. DriWater can be applied in cardboard cartons or in plastic tubes with gel packs. DriWater can be costly to utilize on large scale restoration projects, and therefore would only be used in special cases where supplemental watering was insufficient to promote plant establishment. DriWater may be most useful within the enhancement area if supplemental watering is infeasible.

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### **3.5 Target Functions and Values**

The primary functional goal of the restored coastal sage scrub, cactus scrub, and mulefat scrub and the enhanced mixed coastal scrub is to restore vegetation that contains a diversity of native coastal scrub plant species and that provides habitat value for sensitive wildlife species, particularly for coastal California gnatcatcher and cactus wren. Additionally, a secondary consideration is to create contiguous and intact habitat which resists the re-establishment of invasive plant species.

### **3.6 Time Lapse**

The length of time necessary to develop high quality habitat depends on a variety of factors including weather, soil conditions, herbivory protection, weed competition, and maintenance quality. Under optimal conditions, coastal sage scrub, cactus scrub, and mulefat scrub may take approximately three from the installation of container plants and application of seed to develop the appropriate structure to provide the functions and values needed for habitation of wildlife, including suitable nesting habitat for California gnatcatcher and other scrub species. In an unirrigated setting, and with drought conditions, scrub development may take longer than three years to mature enough to be suitable for nesting. As a hedge against drought, the addition of supplemental watering would increase plant survival, improve establishment, and hasten habitat development. This plan allows for five years of maintenance and monitoring to establish the target habitats.



# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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## 4 IMPLEMENTATION PLAN

### 4.1 Rationale for Expecting Success

The identified locations for restoration on the Abalone Cove Reserve are directly adjacent to viable and self-sustaining target habitats, indicating appropriate environmental conditions to support the intended habitats. This HRP includes a provision for supplemental watering to promote establishment and survival of native species included in the plant palette. The HRP also includes a 5-year maintenance plan, wherein invasive non-native weeds within the restoration site will be controlled to aid native plant establishment. Additionally, native plant materials will be grown or collected from sources on the Palos Verdes Peninsula, thus preserving genetic integrity and increasing the potential for long-term success.

### 4.2 Preliminary Schedule

Appropriate timing of planting and seeding will minimize the need for supplemental watering and will increase the survival rate of the installed plants. The best survival rates are achieved when container plants and seed are installed at the onset of the rainy season or soon thereafter (November through February). Planting and seeding at the site should be timed to take advantage of seasonal rainfall patterns and most appropriate growing season temperatures (see Charts 1–2 and Table 5).

**Table 5**  
**Preliminary Restoration Project Schedule**

Task	Date
Site clearing	Fall prior to first year
Invasive weed species control and grow-kill cycles	Winter and Spring of first year
Installation of supplemental watering system	Summer of first year
Planting container stock	Fall and Early Winter of second year
Seed application	Fall and Early Winter of third year
Monitoring and maintenance	To begin upon successful installation of container plants

# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Chart 1  
Average Monthly Precipitation for the Portuguese Bend Nature Preserve

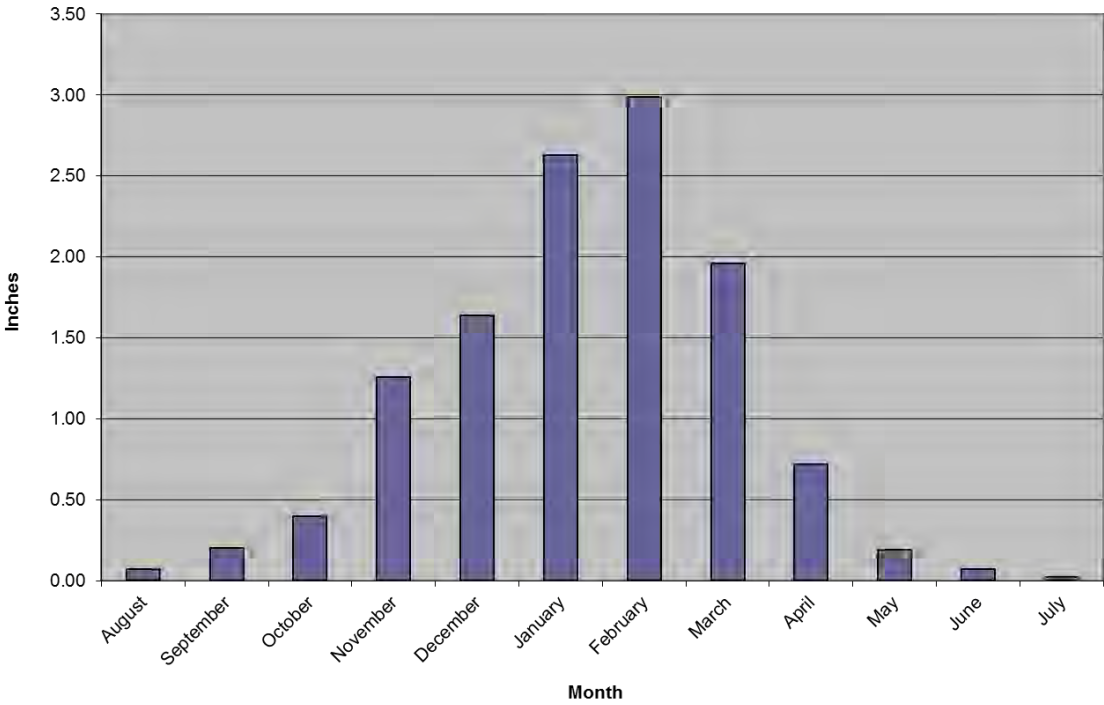
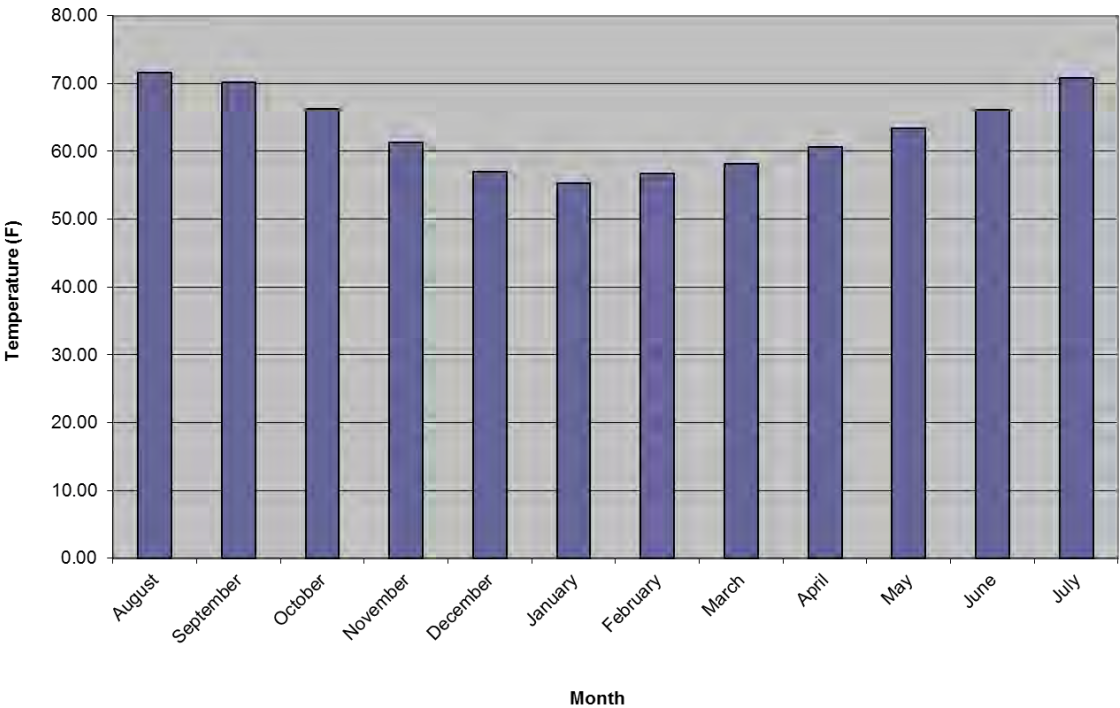


Chart 2  
Average Monthly Temperatures for the Portuguese Bend Nature Preserve



## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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### **4.2.1 Site Preparation**

Site preparation includes control of invasive weed species and soil preparation in the restoration areas. If clearing of weeds is planned to be performed during the migratory bird nesting season (February 15–September 15), a nesting bird survey should be conducted by a qualified wildlife biologist within 72 hours prior to vegetation removal in accordance with the Migratory Bird Treaty Act (16 U.S.G. 703-712).

During site preparation, all invasive weed species, particularly non-native annual grasses, black mustard, and fennel, should be killed and removed from the restoration areas. Invasive species control should also include exotic trees and shrubs such as spiny holdback, Peruvian pepper, Brazilian pepper, coastal wattle, pine trees, and palms, as directed by PVPLC staff.

The initial weed control effort will involve a combination of chemical and mechanical treatment. Prior to the installation of native plant materials, “grow and kill” weed removal treatments should be conducted by allowing non-native seedling emergence in the winter and spring. When weeds have begun to grow, and before they begin to develop flowers or flowering structures, a foliar application of an appropriate systemic herbicide should be applied to kill target weeds. If adequate rainfall occurs during this period, multiple grow-kill cycles should be repeated. The restoration ecologist will provide weed control recommendations to the restoration maintenance staff that are specific to the target weed species identified for control. Any use of herbicides shall be in accordance with label instructions, following the recommendations of a licensed Pest Control Advisor, and any application shall be applied under the direction of a state-certified Qualified Applicator.

### **4.2.2 Supplemental Watering System**

The planned method of providing supplemental watering at the proposed restoration area is with a temporary above-ground drip irrigation system. This will help ensure that native container plants and seed installed on site will become adequately established. The supplemental watering system would only be used until the plants are established such that they can survive on their own between periods of rainfall. It is expected that, depending upon the level of plant establishment, the watering system would be removed after two to three years of use. Watering on site will gradually be decreased prior to the removal of the system so the plants can become acclimated to the site’s natural conditions.

The habitat enhancement area may prove infeasible for installation of a temporary watering system. Areas that require planting within the enhancement area will be considered for supplemental watering from a water truck or the use of alternative methods such as DriWater.

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There is a fire hydrant located immediately north of the proposed restoration site along Palos Verdes Drive South that may function as a point of connection for a temporary irrigation system (Figure 5). The irrigation system should be designed by a landscape architect to ensure that the system has adequate water pressure to supply water to all areas of the proposed restoration site. The supplemental watering system would be installed as an above-ground system, so that irrigation equipment may be removed once the system has been decommissioned.

### **4.2.3 Erosion Control**

Where needed, erosion control measures, such as the installation of sandbags, fiber rolls, silt fencing, and/or erosion-control matting may be necessary to control erosion until target vegetation is established. At a minimum, silt fencing should be installed at the toe of slopes that are unvegetated after removing non-native species. Additionally, erosion control materials may be needed at the edge of the coastal bluff, particularly in the locations where surface runoff coalesces and runs off the bluff. No erosion control materials should be used that contain seed from non-native plants. The need and location of erosion control will be determined in the field by the project's restoration ecologist.

### **4.2.4 Plant Installation**

Standard planting procedures will be employed for installing container stock. Planting holes shall be approximately twice the width of the rootball, and as deep. If dry soil conditions exist at the time of plant installation, planting holes will be filled with water and allowed to drain immediately prior to planting. A fertilizer packet with controlled-release fertilizer (e.g., Best Paks 20-10-5) will be placed in the bottom of each hole prior to planting.

### **4.2.5 Seed Application**

Seed will be hand broadcast throughout the restoration site. The seed mix is primarily a supplemental feature to increase diversity and will not occur until the second year of the Restoration Program. The seeding sites should be prepared by removing weedy vegetation to expose the soil surface. The seed should be raked into the soil so there is good seed-soil contact. Seeding should be timed to occur prior to or early in the rainy season.





SOURCE: Palos Verdes Peninsula Land Conservancy, 2014; Bing Maps, 2015

**FIGURE 5**  
**Abalone Cove Restoration Area**



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# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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## 5 MAINTENANCE PLAN

The purpose of the maintenance plan is to provide guidelines for long-term maintenance of the restoration site during the establishment period. Maintenance activities will be initiated during the weed reduction period (i.e., grow-kill cycles), and will occur at the direction of the project's restoration ecologist on an as-needed basis. The maintenance period will intensify after the installation of the container plants. Maintenance will be necessary until the habitats are fully established, which is estimated to take approximately five years.

Because the goal of this project is to establish a natural system that can support itself with little or no maintenance, the primary focus of the maintenance plan is concentrated in the first few seasons of plant growth following the revegetation effort, when weeds can easily out-compete native plants. The intensity of the maintenance activity is expected to subside each year as the native plants become established, and local competition from non-native plants for resources is minimized through direct removal and treatment of non-native plants.

### 5.1 Maintenance Activities

Maintenance activities will be primarily related to non-native invasive plant species control. Supplemental watering, supplemental planting, trash removal, and erosion control will also be conducted, as necessary.

- Non-native plant species should be controlled as soon as they begin to establish. Recommended control methods should be tailored to each specific weed species and should include the most effective control measures for the species and time of year. Control methods may include a combination of manual, mechanical, and chemical control.
- Container plants should be watered when natural rainfall is not adequate to sustain the establishing plants. The project's restoration ecologist will be responsible for scheduling the supplemental watering to promote plant establishment. Supplemental watering should be conducted as deep, soaking watering to promote deep rooting.
- Generally, the site will not be fertilized during the maintenance period unless determined necessary by the project's restoration ecologist as a remedial measure to correct soil nutrient deficiencies.
- Deadwood and leaf litter of native vegetation should not be removed. Deadwood and leaf litter provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. Non-organic trash and debris should be removed from the revegetation areas on a regular basis.

## Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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- Erosion control materials should be maintained in working order until they are deemed no longer necessary by the project's restoration ecologist. Maintenance of erosion control materials may include repairing or replacing dilapidated, damaged, or ineffective materials.

### 5.2 General Habitat Maintenance Guidelines

#### 5.2.1 Weed Control

Weeds are expected to be the primary pest problem in the restoration area during the first several years of the maintenance period. Weeds should be controlled so they do not prevent the establishment of the native species or invade adjacent areas. A combination of physical removal, mechanical treatments (weed whipping) and appropriate herbicide treatments should be used to control the non-native/invasive plant species. Weeds should be controlled prior to setting seed, and should be removed from the site if they become large enough to block sunlight to developing native plants.

Re-establishment of non-native plants onto the site can be adequately minimized by regular and timely maintenance visits with implementation of effective weed control measures. Weed control will require constant diligence by the maintenance personnel. Invasive plant species, such as those listed in Table 1 should be controlled wherever possible within the restoration area. Mature invasive tree species will be retained at the discretion of the PVPLC though the majority of individuals should be removed to reduce the spread of weed propagules.

Removal of weeds by hand where practicable and effective is the most desirable method of control and should be done around individual plantings and native seedlings to avoid inadvertent damage to the native species. However, several of the invasive species may be more effectively controlled with herbicide due to their tenacious and spreading root systems, their size, or their ability to re-sprout from root fragments. All herbicides shall be used in accordance with label instructions, following the recommendations of a licensed Pest Control Advisor, and any application shall be applied under the direction of a state-certified Qualified Applicator. The project's restoration ecologist should monitor control efforts to ensure that the target weed species are being adequately addressed without impacting the native plants.

The non-native Bagrada bug (*Bagrada hilaris*) has been documented on the Palos Verdes Peninsula, and is known to cause substantial damage to plant species from the mustard family (*Brassicaceae*) (County of Los Angeles 2013; University of California, Riverside 2013). As black mustard is one of the predominant species within the proposed coastal sage scrub restoration area, the Bagrada bug may occur; however, it is expected that the damage

## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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caused by this insect would be to non-native mustard species, and not native plants. Despite this, if the species becomes problematic as a pest species on the native plants, then the restoration ecologist will evaluate whether or not control measures are necessary. Similarly, if other deleterious pests (e.g., beetles on bladderpod) become problematic enough to cause container plant mortality, the restoration ecologist may recommend measures to minimize pests and promote healthy plant establishment.

### **5.2.2 Supplemental Watering System**

Supplemental watering will be provided for two to three years after planting to help the container plants become established. Supplemental watering will be provided through a drip irrigation system. Supplemental watering would likely be necessary every 3–4 weeks during the dry season, and more frequently immediately after installation if natural rainfall does not provide adequate moisture. If a temporary, on-grade supplemental watering system is installed in the restoration area as described in Section 4.4, it would need to be maintained and repaired as necessary.

The watering system shall be checked regularly to ensure proper operation and adequate coverage of the restoration areas. Problems with the watering system shall be repaired immediately to reduce potential plant mortality or erosion. The frequency and duration of irrigation applications shall be adjusted seasonally in coordination with the project's restoration ecologist to meet habitat needs.

Supplemental watering will be terminated when deemed appropriate by the project's restoration ecologist. All above-ground components of the watering system should be removed from the site at the successful completion of the project. The timing for cessation and removal of the irrigation system shall be determined by the project's restoration ecologist.

### **5.2.3 Clearing and Trash Removal**

Trash consists of all man-made materials, equipment, or debris dumped, thrown, washed into, or left within the restoration area. Pruning or clearing of native vegetation is not anticipated to be necessary within the restoration area, unless extensive growth is causing a maintenance problem for a utility or for an area outside of the restoration area. Any pruning or clearing of native vegetation should be approved by the project's restoration ecologist. Deadwood and leaf litter of native vegetation will be left in place to replenish soil nutrients and organic matter.



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### **5.3 Schedule of Maintenance Inspections**

The project's restoration ecologist will perform quarterly maintenance/monitoring inspections during the scheduled maintenance and monitoring period. Recommendations for maintenance efforts will be based upon these site observation visits. Weed control shall be conducted as needed to ensure adequate control to promote healthy establishment of the target habitat types. It is anticipated that weed control will be necessary on a monthly basis during the winter and early spring when weeds are vigorously growing. Weed control during other times of the year will likely be diminished, but conducted as necessary, and as directed by the project's restoration ecologist.

# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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## 6 MONITORING PLAN

Monitoring of the restoration site has a two-fold purpose: **(1)** To monitor the progress of the Abalone Cove Reserve restoration areas by assessing native habitat establishment relative to the established performance standards; and **(2)** To direct and monitor the maintenance activities and determine remedial actions in a manner that ensures that appropriate maintenance occurs in a timely manner. The monitoring will be performed by the project's restoration ecologist.

The project's restoration ecologist will be responsible for monitoring activities of all the work crews during preparation of the restoration area including site clearing and soil preparation, weed control, container plant and seed application, and quarterly monitoring for the duration of the 5-year maintenance and monitoring period.

Reports will be prepared annually for the restoration areas after installation is complete. Each report will include qualitative data, photo documentation, and future recommendations for site maintenance as described below.

### 6.1 Performance Standards

Performance standards have been established for the habitat restoration area based on the guidelines in the draft NCCP and on expected vegetative development relative to undisturbed habitat of the same type (Table 6). The following performance standards apply to the Abalone Cove restoration site:

1. Soil at the site is stable and shows no significant erosion.
2. After five years, non-native plant cover is less than 25% with less than 15% cover of invasive perennial species. After five years, there will be no presence of species on Cal-IPC List A with the possible exception of Cal-IPC List A non-native annual grasses.
3. Native plant cover after three years in the CSS community should be greater than 40% with at least 30% cover from perennial species. At five years, total native cover should be greater than 50% with appropriate species diversity.
4. Native plant cover after three years in the cactus scrub community should be greater than 30% with at least 20% cover from perennial species and 5% cover from cactus species. Native plant cover after five years in the cactus scrub community should be greater than 40% with at least 10% cover from cactus.

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**Table 6**  
**Performance Standards**

Year	Percent Cover of Native Species (%) <sup>*</sup>			Non-native Cover (for all habitat types)	
	<i>Coastal Sage Scrub</i>	<i>Cactus Scrub</i>	<i>Mulefat Scrub</i>	<i>Invasive Perennial Species Cover</i>	<i>Total Non-native Species Cover</i>
Year 3	>40% (>30% perennial)	>30% (>20% perennial and >5% cacti)	>40%	<15% (0% of Cal-IPC List A) <sup>*</sup>	<25%
Year 5	>50%	>40% (>10% cacti)	>50%	<15% (0% of Cal-IPC List A) <sup>*</sup>	<25%

<sup>\*</sup> The NCCP success criteria allow an exception to the requirement for 0% Cal-IPC List A for non-native annual grasses. In other words, Cal-IPC List A grass species would not count toward the 0% criteria, but would count toward the 25% criteria for total non-native species cover.

The Year 3 performance standards will be utilized to assess the annual progress of the restoration area, and are regarded as interim project objectives designed to reach the final Year 5 goals. Fulfillment of these standards will indicate that the restoration area on the project site is progressing toward the habitat type and functions that constitute the long-term goals of the plan. If the restoration efforts fail to meet the performance standards in any year, the project's restoration ecologist may recommend remedial action to be implemented the following year with the intent to enhance the vegetation to a level of conformance with the original standard. These remedial actions may include re-seeding, re-planting, applying soil amendments, additional weed control measures, erosion control, or adjustments to the watering and maintenance practices.

## 6.2 Monitoring Methods and Schedule

Annual qualitative assessments will be conducted through visual analysis of the restoration area to assess vegetation development, weed presence, and plant establishment. Qualitative monitoring will include reviewing the health and vigor of container plants and seed germination/establishment, assessing survival/mortality, checking for the presence of pests and disease, soil moisture content, and the effectiveness of the supplemental watering, erosion problems, invasion of weeds, and the occurrence of trash and/or vandalism. Representative photographs of the restoration site from stationary photo points will be taken annually.

Permanent vegetation sampling sites will be established within the coastal sage scrub and cactus scrub restoration areas at randomized representative locations. A minimum of one transect will be established for each two acres of restoration area, and at least one transect for each habitat type. The mulefat scrub area is too small to establish quantitative sampling sites and will be evaluated with visual estimates of cover. Transect data will be collected in Years 3 and 5 from the restoration sites in the spring and will be used to determine compliance and achievement of

## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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the restoration performance standards. Transect data will be collected using the point-intercept method to determine percent target vegetation cover and weed cover. If the restoration project is in compliance with the Year 5 performance standards in an earlier monitoring period, then qualitative assessments may be substituted for the quantitative monitoring until the end of the 5-year restoration program. If the restoration site is performing below the interim performance standards, the project's restoration ecologist will determine if remedial measures are necessary.

Each monitoring visit will be followed by a summary of observations, recommendations, and conclusions. Results from the annual monitoring will be used to evaluate the progress of each habitat toward the ultimate goals of the project, and to recommend appropriate management actions.

### **6.3 Monitoring Reports**

The designated restoration ecologist will monitor and report on the restoration work underway in the Abalone Cove Reserve. The restoration area will be monitored for five years, with reports prepared in Years 1-3 and Year 5. Monitoring reports should provide concise, meaningful summaries of the restoration progress and provide direction and maintenance recommendations for future work.

Annual reports will include the following:

1. A description of the restoration and maintenance activities (e.g., seeding, irrigation, weed control, trash removal) conducted on the site during the previous year including the dates the activities were conducted.
2. A description of existing conditions within the restoration site, including descriptions of vegetation composition, weed species, and erosion problems, if any.
3. Qualitative and quantitative monitoring data related to proposed target goals including a comparative analysis of data over the years the project has been monitored.
4. Recommendations for remedial measures to correct problems or deficiencies, if any.
5. Representative photographs of notable observations on site and from fixed photo viewpoints.

### **6.4 Project Conclusion**

At the end of the 5-year monitoring period, a final report will be prepared by the restoration ecologist for submittal to PVPLC. The final report will summarize the project relative to project goals. Upon completion, the site will be managed along with other reserve lands in the Palos Verdes Nature Preserve by the PVPLC.

## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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# Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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## **Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve**

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# **APPENDIX A**

## *Soil Test Results*



<b>WALLACE LABS</b>		<b>SOILS REPORT</b>		Print Date	July 17, 2015	Receive Date	7/16/15
<b>365 Coral Circle</b>		Location Palos Verdes Peninsula, Job No. 9085					
<b>El Segundo, CA 90245</b>		Requester Andy Thomson and Jake Marcon, Dudek					
<b>(310) 615-0116</b>		graphic interpretation: * very low, ** low, *** moderate					
<b>ammonium bicarbonate/DTPA</b>		**** high, ***** very high					
extractable - mg/kg soil	Sample ID Number	15-198-07		15-198-08		15-198-09	
Interpretation of data	Sample Description	AC #1		AC #2		AC #3	
low medium high	elements	graphic		graphic		graphic	
0 - 7 8-15 over 15	phosphorus	10.35 ***		10.25 ***		9.20 ***	
0-60 60 -120 121-180	potassium	522.13 *****		318.32 *****		247.26 *****	
0 - 4 4- 10 over 10	iron	1.38 *		1.45 *		1.38 *	
0- 0.5 0.6- 1 over 1	manganese	2.01 *****		2.01 *****		1.61 *****	
0 - 1 1 - 1.5 over 1.5	zinc	2.45 *****		2.40 *****		11.62 *****	
0- 0.2 0.3- 0.5 over 0.5	copper	6.19 *****		5.50 *****		6.36 *****	
0- 0.2 0.2- 0.5 over 1	boron	0.18 **		0.23 ***		0.17 **	
	calcium	322.10 ***		316.50 ***		326.12 ***	
	magnesium	259.18 *****		304.98 *****		347.17 *****	
	sodium	197.35 ***		212.89 *****		155.06 ***	
	sulfur	20.84 *		20.50 *		27.78 **	
	molybdenum	0.08 ***		0.01 **		0.10 *****	
	nickel	2.51 **		1.85 **		1.74 **	
The following trace	aluminum	n d *		n d *		n d *	
elements may be toxic	arsenic	0.07 *		0.01 *		0.03 *	
The degree of toxicity	barium	2.41 *		1.81 *		2.97 *	
depends upon the pH of	cadmium	1.46 **		0.99 *		1.00 *	
the soil, soil texture,	chromium	n d *		n d *		n d *	
organic matter, and the	cobalt	0.06 *		0.04 *		n d *	
concentrations of the	lead	2.51 **		2.10 **		4.20 **	
individual elements as	lithium	0.40 *		0.40 *		0.43 *	
well as to their interactions.	mercury	n d *		n d *		n d *	
	selenium	n d *		n d *		n d *	
The pH optimum depends	silver	n d *		n d *		n d *	
upon soil organic	strontium	0.61 *		0.68 *		0.75 *	
matter and clay content-	tin	n d *		n d *		n d *	
for clay and loam soils:	vanadium	1.28 **		1.20 **		1.38 **	
under 5.2 is too acidic							
6.5 to 7 is ideal	Saturation Extract						
over 8.0 is too alkaline	pH value	7.69 *****		7.76 *****		7.68 *****	
The ECe is a measure of	ECe (milli-	0.72 **		0.45 **		0.44 **	
the soil salinity:	mho/cm)						
1-2 affects a few plants	calcium	61.1	3.1	38.8	1.9	41.3	2.1
2-4 affects some plants,	magnesium	14.3	1.2	8.7	0.7	9.7	0.8
> 4 affects many plants.	sodium	43.6	1.9	32.9	1.4	26.5	1.2
	potassium	11.4	0.3	2.3	0.1	2.5	0.1
	cation sum	6.4		4.2		4.1	
problems over 150 ppm	chloride	128	3.6	48	1.3	49	1.4
good 20 - 30 ppm	nitrate as N	12	0.9	7	0.5	5	0.3
	phosphorus as P	0.2	0.0	0.3	0.0	0.1	0.0
toxic over 800	sulfate as S	7.6	0.5	8.5	0.5	11.3	0.7
	anion sum	5.0		2.4		2.4	
toxic over 1 for many plants	boron as B	0.28 **		0.16 *		0.22 **	
increasing problems start at 3	SAR	1.3 *		1.2 *		1.0 *	
est. gypsum requirement-lbs./1000 sq. ft.		37		54		58	
	relative infiltration rate	slow/fair	sand - 19.6%	slow	sand - 18.0%	slow	sand - 18.1%
	soil texture	clay	silt - 34.3%	clay	silt - 33.1%	clay	silt - 35.9%
	lime (calcium carbonate)	slight	clay - 46.1%	low	clay - 48.9%	slight	clay - 46.0%
	organic matter	fair		fair		fair	
	moisture content of soil	14.5%	gravel over 2 mm	15.2%	gravel over 2 mm	15.4%	gravel over 2 mm
	half saturation percentage	41.3%	8.8%	40.8%	8.4%	46.3%	8.9%

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.

pH and ECe are measured in a saturation paste extract. nd means not detected.

Sand, silt, clay and mineral content based on fraction passing a 2 mm screen.





**HABITAT RESTORATION PLAN**  
**for the**  
**Abalone Cove Reserve**  
**Phase 4**  
**in the**  
**Palos Verdes Nature Preserve**

**Palos Verdes Peninsula Land Conservancy**

916 Silver Spur Road, Suite 207

Rolling Hills Estates, California 90274

Contact: Cris Sarabia

# August 2021

## **Introduction**

This Habitat Restoration Plan (Plan) was prepared for Phase 4 of the Abalone Cove Reserve NCCP habitat restoration project. The Abalone Cove Reserve is located within the Palos Verdes Nature Preserve (PVNP) which is located within the City of Rancho Palos Verdes. This habitat restoration plan describes how the Land Conservancy will implement two (2) acres of coastal sage scrub and three (3) acres of mixed Southern Coastal Bluff Scrub/Southern Cactus Scrub, and includes details regarding planting palette recommendations, project location, project schedule, and conceptual irrigation plan. This Plan supplements the components of the Abalone Cove Habitat Restoration Plan (Dudek), and remains consistent with those specifications including invasive plant management, maintenance, monitoring protocols and success criteria, etc.

## **Existing Conditions**

Current plant communities in the project vicinity according to vegetation mapping in 2010 consists of Southern Coastal Bluff Scrub, Grassland and CSS undifferentiated. The Southern Coastal Bluff Scrub, Grassland and CSS Undifferentiated have native and non-native plant components. As part of this restoration plan, non-native species will be removed and naturally occurring native plants will be left in place. Current site conditions can be seen in Figure 1.



Figure 1



## Restoration Program

This restoration plan outlines the restoration and enhancement of 2 acres of coastal sage scrub and 3 acres of mixed Southern Coastal Bluff Scrub/Southern Cactus Scrub. Following the previously created restoration plan for Abalone Cove Phases 1 through 3, Phase 4 will continue with the same restoration and implementation program as well as monitoring and maintenance schedule and protocols.

## Habitats to be Established or Enhanced

The two habitats to be established are Coastal Sage Scrub and Southern Coastal Bluff Scrub/Southern Cactus Scrub Mix (Figure 2 and Tables 1 and 2)



**Figure 2**



**Table 1**

<b>Coastal Sage Scrub Planting Palette (2 acres)</b>						
<b>Botanical Name</b>	<b>Common Name</b>	<b>Container Size</b>	<b>Spacing(on center)</b>	<b>Group Size</b>	<b>Quantity (per acre)</b>	<b>Total Plants</b>
Artemisia californica	California sagebrush	1 gal	5	5	348	696
Astragalus trichopodus var. lonchus	Ocean locoweed	1 gal	3	7	184	368
Baccharis pilularis	Coyote brush	1 gal	5	3	87	174
Brickellia californica	California bricklebrush	1 gal	5	3	87	174
Corethrogyne filaginifolia	Common sandaster	D-40	3	3	24	48
Cylindropuntia prolifera	Coastal cholla	1 gal	4	5	27	54
Dudleya virens	Bright green dudleya	1 gal	3	3	24	48
Elymus condensatus	Giant wildrye	D-40	6	3	24	48
Encelia californica	California Bush Sunflower	D-40	5	5	261	522
Eriogonum cinereum	Ashy-leaf Buckwheat	1 gal	5	5	87	174
Eriogonum parvifolium	Seacliff buckwheat	1 gal	5	5	87	174
Eriophyllum confertiflorum	Golden Yarrow	D-40	3	5	145	290
Isocoma menziesii	Coast goldenbush	D-40	3	3	87	174
Mirabilis laevis var. crassifolia	Wishbone Bush	1 gal	3	5	54	108
Opuntia littoralis/oricola	Chaparral pricklypear	1 gal	3	3	24	48
Opuntia littoralis/oricola	Chaparral pricklypear	5 gal	5	3	24	48
Opuntia littoralis/oricola	Chaparral pricklypear	15 gal	10	5	5	10
Peritoma arborea	Bladderpod	D-40	5	5	35	70
Rhus integrifolia	Lemonadeberry	D-40	10	1	2	4
Salvia leucophylla	Purple sage	1 gal	5	5	87	174
Salvia mellifera	Black sage	1 gal	3	3	87	174
Stipa cernua	Nodding Needlegrass	D-40	2	3	35	70
Stipa lepida	Foothill Needlegrass	D-40	2	3	35	70
Stipa pulchra	Purple Needlegrass	D-40	2	3	35	70
				<b>Total</b>	<b>1790</b>	<b>3790</b>

**Table 2**

<b>Southern Coastal Bluff Scrub/Southern Cactus Scrub Planting Pallette (3 acres)</b>						
<b>Botanical Name</b>	<b>Common Name</b>	<b>Container Size</b>	<b>Spacing (on center)</b>	<b>Group Size</b>	<b>Quantity (per acre)</b>	<b>Total Plants</b>
Aphanisma blitoides	Aphanisma	as available	3	3	35	105
Atriplex pacifica	South Coast saltscale	as available	3	3	23	69
Cylindropuntia prolifera	Coastal Cholla	1 gal	5	5	122	366
Cylindropuntia prolifera	Coastal Cholla	5 gal	5	3	45	135
Cylindropuntia prolifera	coastal Cholla	15 gal	10	3	12	36
Dudleya virens	Bright Green Dudleya	1 gal	4	3	34	102
Eriogonum parvifolium	Seacliff Buckwheat	D40/4"	5	3	87	261
Lycium brevipes	Baja Desert Thorn	1 gal	10	3	23	69
Lycium californica	California Boxthorn	1 gal	7	3	34	102
Mirabilis laevis var. crassifolia	Desert Wishbone-bush	1 gal	5	3	54	162
Opuntia littoralis	Coastal Pricklypear	1 gal	5	5	157	471
Opuntia littoralis	Coastal Pricklypear	5 gal	5	3	70	210
Opuntia littoralis	Coastal Pricklypear	15 gal	10	3	12	36
Opuntia oricola	Chaparral pricklypear	1 gal	3	3	157	471
Opuntia oricola	Chaparral pricklypear	5 gal	5	3	70	210
Opuntia oricola	Chaparral pricklypear	15 gal	10	3	12	36
Peritoma arborea	Bladderpod	D40/4"	4	3	35	105
Rhus integrifolia	Lemonadeberry	D40/4"	15	1	5	15
Suaeda taxifolia	Wooly Seablite	As available	4	3	34	102
				Total	1021	3063

## Irrigation Plan

A temporary irrigation system will be installed to provide supplemental watering when natural precipitation rates are inadequate for plant establishment. The temporary, above ground watering system will have a point of connection at the current restoration site and its watering system. The irrigation will be placed above ground for easy removal when plants have been determined to be established and the project is deemed complete. Pipes will be buried at all trail crossings at the appropriate depth as directed by the project manager. The conceptual routed for the main line is shown in Figure 3.



Figure 3

**Table 3**

<b>Preliminary Restoration Project Schedule</b>		
<b>Task</b>	<b>Date</b>	
Site clearing	Fall Prior to first year	October 2021
Invasive weed species control and grow-kill cycles	Winter and Spring of first year	October 2021-October 2022
Installation of supplemental watering system	Summer of first year	July 2022
Planting of container stock	Fall and early winter of second year	November 2022
Seed Application	Fall and early winter of 3rd year	November 2022 or before large rain event
Monitoring and Maintenance	To begin upon successful installation of container plants	Five years after planting

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# **APPENDIX B**

## **2022 RESTORATION MONITORING REPORT**



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In 2022, vegetation surveys were conducted at restoration sites within currently-managed NCCP/HCP restoration projects located at Alta Vicente, Portuguese Bend, and Abalone Cove Reserves to quantify establishment of native plant habitat through measurements of estimated percent cover of native and non-native plants, litter, and bare ground. This data is used to evaluate the success of restoration based on the goals determined in each site-specific restoration plan. Transect status relative to success criteria measures for each Reserve can be found in Tables 6-9. Photopoint documentation of all restored areas continued, and include a photograph being taken at the beginning and end of each monitoring transect (Appendix B-1).

## **1.0 ALTA VICENTE SURVEY METHODS**

Restored habitat areas were surveyed through qualitative and photographic vegetative assessment techniques along 50m permanent transect lines (location of transects: Figure 1) within three habitat types (coastal sage scrub, cactus scrub, and Palos Verdes blue butterfly habitat). Transects were surveyed in July 2022 by PVPLC Biologist Olivia Jenkins. Success criteria was assessed using qualitative methodology (CNPS Rapid Vegetation Assessment Method) in monitoring Years 1 and Year 2 and with quantitative methodology (point-intercept method) in Years 3 and 5. Photopoints were collected in all monitoring years. Areas that had not achieved success by Year 5 according to criteria, were assessed using qualitative methods to determine overall plant health for the restored area. Qualitative measurements of percent cover for native, non-native, species-specific, and bare/litter categories were collected through use of an adapted form of the CNPS Rapid Vegetation Assessment Method. Quantitative measurements of percent cover and plant size (height and width) were collected using the point-intercept method on a 50m transect to evaluate restoration success based on set criteria for Year 3 and Year 5 after planting. Photopoints were taken at both ends of permanent monitoring transects to aid in the assessment of plant health and establishment (Figure 1). Transects not meeting success criteria by Year 5 (end of required monitoring period) were monitored using qualitative measures to assess plant percent cover and overall recovery of the habitat within a 10-m buffer of the transect.

## **1.1 ALTA VICENTE PHASE 1 AND 2 SURVEY RESULTS (YEAR 12)**

### **PVB Butterfly Habitat**

Two monitoring transects (AV-2 and AV-5) were surveyed within the PVB butterfly habitat of Phase 2 restored areas. AV-2 was surveyed within the PVB habitat of Phase 2 restoration following a relocation from Phase 1. Qualitative survey methods (CNPS Rapid Vegetation Assessment Method) found percent cover of native plant species to be 57.5%, an increase from 2021, with 0.5% cover by PVB host plants (Table 1). Native plant cover is within the success criteria range for Year 5+ goals but host plant cover falls below the minimum of 10% coverage goal for Year 5+ (Table 6).

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At AV-5, qualitative survey methods (CNPS Rapid Vegetation Assessment Method) found percent cover by native plant species to be 50% with 2% cover by PVB host plants, both increased since 2021 (Table 1). Qualitative assessments indicate that habitat along AV-5 is within success criteria goals for native cover (30-60% in Year 5+) but the host plant cover falls below Year 5+ goals (>10% coverage from *Acemispom glaber* and/or *Astragalus trichopodus*).

### **Coastal Sage Scrub**

All CSS transects in Phase I have met success criteria in 2020 or earlier and will no longer be monitored. Qualitative methods describe AV-6 as achieving success criteria goals for native plant cover in 2020; these goals (>50% CSS) were again met in 2022 at 72% native plant cover.

### **Cactus Scrub**

All Cactus Scrub transects were removed from monitoring activities after achieving success criteria in 2018 or earlier.

## **1.2 ALTA VICENTE SURVEY RESULTS PHASE 3 (YEAR 5)**

In June 2022, Phase 3 restoration at Alta Vicente was monitored in June 2022 using quantitative point-intercept monitoring methods (AV-7 and AV-8) as well as qualitative CNPS Rapid Assessment Methodology (AV-7, AV-8, and Wildflower).

### **Coastal Sage Scrub**

Using qualitative methods (CNPS Rapid Assessment Methodology), the two coastal sage scrub (CSS) habitats represented by transects AV-7 and AV-8 met the success criteria on schedule for Year 5 (>50% CSS). AV-7 had a total native plant cover of 67% and AV-8 had a total of 54.5% (Table 1).

Quantitative survey results were similar for native plant cover in AV-7, which had a total relative native cover of 46% along the transect, and AV-8, which had a total relative native cover of 50% (Table 2). The slightly different percent results for the same transect using different methods are expected. The AV-7 survey found 8 native species, and dominant species were *Artemisia californica* and *Eriogonum fasciculatum*. AV-8 had a total of 7 native species along the transect, largely *Eriogonum cinereum* and *Encelia californica*. Analysis of the condition and average height and width of native plants within AV-7 and AV-8 suggests that the plants are largely in a good condition, with few in poor or dead condition (Table 3). The average height and width of *Artemisia californica* in AV-7, for example, was 101 cm (3 ft) and 145cm (4.8 feet), respectively (Table 3).

### **Grassland / Wildflower**

The Grassland / Wildflower habitat had 86% native cover, an increase from previous years, and 11% non-native cover (Table 1). The habitat exceeded Year 5 success criteria of >40% native cover and <25% non-native cover on schedule and will be removed from future monitoring.

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### **I.3 ALTA VICENTE SURVEY RESULTS PHASE 4 (YEAR 4)**

Phase 4 restoration in Alta Vicente was monitored in July 2022 (Year 4), including AV-9, AV-10, AV-11, and AV-12, using qualitative monitoring methods (CNPS Rapid Assessment Methodology (Table 1)). Two CSS habitats did not meet success criteria (AV-9 and AV-10). The Butterfly habitat and Cactus Scrub habitat did meet success criteria (AV-11 and AV-12).

#### **Coastal Sage Scrub**

In 2022, two coastal sage scrub transects (AV-9 and AV-10) were surveyed using qualitative methods. AV-9 was found to have 40% cover of native plants and 5.5% cover of non-native plants. AV-10 was found to have 37% cover of native plants and 50.5% cover of non-native plants. Both AV-9 and AV-10 are close to meeting Year 3 success criteria (>40%) and appear to be on track to meet final success criteria (>50% native cover) in Year 5 (2023). AV-10 fell short of success criteria by 3%, but will likely meet Year 5 success criteria with proper management and precipitation.

#### **Butterfly Habitat**

In 2022, one butterfly habitat transect (AV-11) was monitored using qualitative methods. AV-11 was found to have 62% cover of native plants (Table 1). AV-11 included 5% cover of PVB host plant *A. trichopodus* var. *lonchus* and 18% cover of ESB host plant *E. parvifolium*. AV-11 had 17% cover of non-native plants including 2% non-native grass species. AV-11 met success criteria for native cover (30-70%) and butterfly hostplant cover (>10%) ahead of schedule. AV-11 also fell within the 10-50% max native shrub cover success criteria at 37.5% native shrub cover.

#### **Cactus Scrub**

In 2022, Cactus Scrub transect AV-12, located on a south-facing slope, was monitored using qualitative methods. AV-12 was found to have a 43.5% relative cover of native plants and a 15.5% relative cover of non-native plants. A year early, this transect met Year 5 success criteria for overall native plant cover (>30%) and exceeds the >5% cactus cover criteria at 12.5% native cactus cover.

### **I.4 ALTA VICENTE CONCLUSIONS AND RECOMMENDATIONS**

In 2022, Phase 1, 2 and 3 CSS restoration areas met success criteria standards, while Phase 4 CSS habitats were within 5% of surpassing success criteria (Tables 1 and 2). In Phase 4, Perennial sage scrub species such as *Artemisia californica*, as well as species of *Salvia* appear to be well established and in good health and on track to meet Year 5 success criteria in 2022.

The native bunch grasses *Stipa lepida* and *Stipa pulchra* within the Phase 2 Grassland / Wildflower field are thriving, accounting for approximately 75% of total plant cover. We recommend maintenance continue as usual including regular non-native annual grass weeding and potential infill planting and/or of wildflowers.

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The cactus scrub habitat areas in Phase 1 and 2 remain in good health and were not monitored in 2022, as they have met success criteria for over 5 years. Phase 4 Cactus Scrub habitat met success criteria again ahead of schedule in 2022. We recommend maintenance continue as usual, including regular non-native plant weeding.

Notably, butterfly habitat in Phase 4 met success criteria in 2022 after failing to meet success criteria in 2021. CSS and ESB butterfly host plant *E. parvifolium* increased most significantly, while PVB butterfly host plant increased slightly from last year. Native woody shrub cover increased in 2022. Mature CSS shrubs can form dense thickets that can reduce space for host plants and prevent future growth. So, in addition to potential infill planting of butterfly host plants, future clearing or thinning of shrubs may be necessary to keep this area within Butterfly habitat success criteria percent cover. Similar to last year, Phase 1 and 2 butterfly habitat did not have sufficient host plant percent cover to meet the Year 5 success criteria. Native plant cover increased in both Phase 1 and 2 butterfly habitats since the previous year. Therefore, recommendations for this area are the same as Phase 4 butterfly habitat.

Despite considerable infill planting and consistent non-native removal since restoration began in 2010, butterfly habitat in these areas remains at a low percent cover compared to Phase 3 and 4 butterfly habitat sites. This suggests that AV-2 and AV-5 habitat areas may not have proper environmental conditions for butterfly host plant to thrive and meet the success criteria. Still, weeding efforts and monitoring of this site will continue until decided otherwise. It is recommended that weed removal be more frequently implemented at PVB host plant restoration sites than other perennial dominated habitat types. Any infill planting that needs to occur in these areas should be solely PVB and ESB host plant species. We recommend continued implementation of disturbance regimes, alongside weeding projects, which the PVB hostplant require for proper growth.

## **2.0 PORTUGUESE BEND SURVEY METHODS (PHASE 1, 2, 3, 4 AND 5)**

Restored habitat areas were surveyed through qualitative, quantitative, and photographic vegetative assessment techniques. Qualitative measurements of percent cover for native, non-native, species-specific, and bare/litter were collected through use of an adapted form of the CNPS Rapid Vegetation Assessment Method across nine transects (PB-1 - PB-9). Quantitative measurements of percent cover and plant size (height and width) were collected through use of the point-intercept method across two transects in their third or fifth Year of establishment. Photopoint documentation of all restored areas continued, and typically included a photograph being taken at the beginning and end of each monitoring transect (Appendix B-1). Monitoring survey of PB-9 was conducted in July 2022. Locations of monitoring transects and photopoints can be found in Figure 3.

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## **2.1 PORTUGUESE BEND SURVEY RESULTS FOR PHASES 1 AND 2**

### **South-facing Coastal Sage Scrub (CSS)**

All transects within Phase 1 and 2 South-facing CSS have met final success criteria in 2020 or earlier. Phase 1 and 2 South-facing will no longer be monitored.

### **North-facing Coastal Sage Scrub (CSS)**

All transects with Phase 1 and 2 North-facing CSS have met final success criteria for native plant cover in 2020 or earlier. Phase 1 and 2 North-facing CSS will no longer be monitored.

### **Cactus Scrub**

All Cactus Scrub transects situated within cactus scrub of Phase 1 and 2 restoration have met the success criteria and were removed from monitoring activities.

## **2.2 PORTUGUESE BEND SURVEY RESULTS FOR PHASE 4**

### **North-facing Coastal Sage Scrub (CSS)**

All North-facing Coastal Sage Scrub transects situated within cactus scrub of Phase 1 and 2 restoration have met the success criteria and were removed from monitoring activities.

## **2.3 PORTUGUESE BEND SURVEY RESULTS PHASE 5 (YEAR 7)**

### **South-facing Coastal Sage Scrub (CSS)**

All transects in South-facing CSS in Phase 5 have met success criteria and will no longer be monitored in the future.

### **Cactus Scrub**

One monitoring transect (PB-9) within cactus scrub of Phase 5 (Year 6) restoration was evaluated against success criteria in 2022 and surveyed using a qualitative (CNPS Rapid Vegetation Assessment) method.

At PB-9, qualitative methods (CNPS Rapid Vegetation Assessment) were used to identify the presence of 12 native plants, a total native plant cover of 43%, and non-native cover of 3% (Table 4). Native species with the highest percent cover were *Artemisia californica* (15%) and *Encelia californica* (15%) (Table 4). Cactus species percent cover (10% cover) met success criteria ( $\geq 10\%$  cover) in 2022 for the first time (Table 4).



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## 2.4 PORTUGUESE BEND CONCLUSIONS AND RECOMMENDATIONS

One transect within restored habitat of Portuguese Bend were evaluated for success criteria in 2022. This transect (PB-9) was monitored under qualitative evaluation Year 7 after failing to meet Year 5 requirements.

Monitoring transects in all restoration Phases, including Phase 5, have now met success criteria measures and display good overall health of the vegetation. As mentioned in the 2017-2021 reports, several factors had been preventing transects within these Phases from being successful; namely the invasion by the non-native black mustard (*Brassica nigra*) and drought conditions. With the efforts to clear black mustard from the restoration area, native plants were slow to recover following the strong mustard influx in 2017 and 2019, but all CSS restoration areas have passed success criteria.

The cactus restoration in Phase 5 met quantitative criteria in 2021 and qualitative methods in 2022. It is recommended that Phase 5 cactus restoration area continue to be monitored and maintained to remove non-native plant cover and allow the cactus species to grow and increase their relative cover so that the area can pass the qualitative monitoring in 2023. Infill planting of native species, mostly cactus species, occurred in 2018 and early 2019, before the growing season. Even with infill planting efforts and supplemental irrigation, cactus scrub is especially slow-growing. It is recommended that areas throughout all Phases with qualifying success criteria evaluations continue to receive non-native plant control to maintain positive native plant growth and establishment.

## 3.0 ABALONE COVE SURVEY METHODS

Restored habitat areas were surveyed through qualitative and photographic vegetative assessment techniques along 50m permanent transect lines. Phase 1 and Phase 2 were surveyed in June 2022 by PVPLC Biologist Olivia Jenkins. Success criteria was assessed using qualitative methodology (CNPS Rapid Vegetation Assessment Method) in monitoring Years 1, as well as Year 2, and will be monitored with quantitative methodology (point-intercept method) in Years 3 and 5. Photopoints were collected in all monitoring years. Areas that do not achieve success by Year 5 according to criteria, are assessed using qualitative methods to determine overall plant health for the restored area. Qualitative measurements of percent cover for native, non-native, species-specific, and bare/litter categories were collected through use of an adapted form of the CNPS Rapid Vegetation Assessment Method.

Quantitative measurements of percent cover and plant size (height and width) will be collected using the point-intercept method on a 50m transect to evaluate restoration success based on set criteria for Year 3 and Year 5 after planting. Photopoints will be taken at both ends of permanent monitoring transects to aid in the assessment of plant health and establishment. Transects not meeting success criteria by Year 5 (end of required monitoring period) will be monitored using qualitative measures to assess plant percent cover and overall recovery of the habitat within a

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10-m buffer of the transect. Locations of monitoring transects and photopoints can be found in Figure 2.

For Phase 1, qualitative monitoring (annual) started in 2021, and quantitative monitoring will be conducted in 2023 and 2025 (Years 3 and 5). For Phase 2, qualitative monitoring (yearly) started in 2022, and quantitative monitoring will be conducted in 2024 and 2026 (Years 3 and 5). Monitoring transects were established in June 2022 for annual qualitative monitoring and quantitative monitoring starting in Year 3 (2023).

### **3.1 ABALONE COVE SURVEY RESULTS FOR PHASE 1 (YEAR 2)**

In Phase 1 restoration areas, qualitative surveys were performed in CSS habitat (AC-1) and Mulefat Scrub (AC-2).

#### **Coastal Sage Scrub**

For Year 2 of Phase 1, the total native plant cover in CSS habitat was estimated to be an average of 50% (Table 5). Non-native cover was estimated at 6% on average in CSS (Table 5). Using qualitative survey methods, transect AC-1 was found to have 29% native cover, slightly below Year 3 success criteria of >40% CSS cover and <25% non-native species cover. AC-2 surpassed this Year 3 success criteria of ahead of time at 71% total native cover and 22% non-native cover.

#### **Mulefat Scrub**

For Year 2 of Phase 1, the total native plant cover Mulefat Scrub habitat was estimated to be an average 43% (Table 5). Phase 1 non-native cover was estimated at 22% in Mulefat Scrub (Table 5). AC-3 had 43% Mulefat Scrub cover and 22% non-native cover, meeting Year 3 success criteria (>40% Mulefat Scrub and <25% non-native species cover) one year early.

### **3.2 ABALONE COVE SURVEY RESULTS FOR PHASE 2 (YEAR 1)**

In Phase 2 restoration areas, qualitative surveys were conducted in Cactus Scrub (transect AC-4) and CSS habitat (transects AC-5 and AC-6).

#### **Cactus Scrub**

For Phase 2, the total native plant cover in Cactus Scrub habitat was estimated to be 29% (Table 5). Success can be largely attributed to regular non-native removal and efficient irrigation. AC-4 had 29% native cover, including 10% cacti cover, and 4% non-native cover. Two years ahead of schedule, this transect exceeded the Year 3 success criteria of >30% native Cactus Scrub cover, including and >5% cacti cover, and <25% non-native cover.

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### **Coastal Sage Scrub**

For Phase 2, the total native plant cover in CSS habitat was estimated to be an average of 42% (Table 5). Non-native cover was estimated at 2% in CSS habitat (Table 5). AC-5 had 52% native CSS cover and 2% non-native cover, meeting Year 3 success criteria (>40% CSS cover) two years early. AC-6 was slightly below success criteria with 31% native cover and 1% non-native cover. This transect is on track to meet Year 3 goals.

### **3.3 ABALONE COVE CONCLUSIONS AND RECOMMENDATIONS**

Phase 1 and 2 within the restored habitat of Abalone Cove were qualitatively evaluated for success criteria in 2022. These areas were monitored under qualitative evaluation Year 1 and Year 2.

Phase 1 restoration area native cover has increased significantly from 2021 and habitats are close to meeting Year 3 success criteria. Half of the CSS transects in Phase 1 met Year 3 success criteria early. The Mulefat Scrub habitat transect also met Year 3 success criteria one year early.

Phase 2 restoration areas are also nearing Year 3 success criteria. One of two CSS habitat transects and the Cactus Scrub habitat transect met Year 3 criteria two years early. Success of both phases can be largely attributed to regular non-native removal and efficient irrigation.

It is recommended that areas throughout all this and all future phases continue to receive non-native plant control and supplemental irrigation when necessary, to maintain positive native plant growth and establishment.

**Table 1. Alta Vicente Qualitative Vegetation Assessment (Phases 1, 2, 3, and 4): Percent cover along each 50m transect as observed along 10m swath on each side of the transect**

Species	Phase 1+2			Phase 3			Phase 4			
	AV-2 (Butterfly)	AV-5 (Butterfly)	AV-6 (CSS)	AV-7 (CSS)	AV-8 (CSS)	Grassland/ Wildflower	AV-9 (CSS)	AV-10 (CSS)	AV-11 (Butterfly)	AV-12 (Cactus Scrub)
<i>Acmispon glaber</i> *								0.5		1
<i>Amsinckia menziesii</i>	10									
<i>Artemisia californica</i>	15	15	15	20	10	1	20	15	14	15
<i>Asclepias fascicularis</i>						1				
<i>Astragalus trichopodus</i> **		1	0.5				0.5	3	5	0.5
<i>Baccharis salicifolia</i>									1	
<i>Brickellia californica</i>				3	8		0.5	2		
<i>Corethrogyne filaginifolia</i>								0.5		
<i>Cylindropuntia prolifera</i>										0.5
<i>Deinandra paniculata</i>				0.5	0.5					
<i>Dudleya sp.</i>									0.5	
<i>Encelia californica</i>	10	20	35	10	10		3	5	12	3
<i>Eriogonum cinereum</i>	3	3	10	7	7		2	2		
<i>Eriogonum fasciculatum</i>				20	5					
<i>Eriogonum parvifolium</i> ***	0.5	1			2		7	2	18	1
<i>Eschscholzia californica</i>						4				
<i>Isocoma menziesii</i> var. <i>sedoides</i>				3	1		2	0.5	0.5	8
<i>Leymus condensatus</i>				0.5	1					
<i>Madia sp.</i>					0.5					
<i>Malosma laurina</i>										1
<i>Mirabilis laevis</i>					0.5					
<i>Opuntia littoralis/oricola</i>	5	5	5				0.5			12
<i>Peritoma arborea</i>	2									1
<i>Rhus integrifolia</i>	3	2	7			2	2	4		1
<i>Salvia leucophylla</i>	8	3	0.5	2	7	2	1	2	0.5	
<i>Salvia mellifera</i>	1			1	1	1	1	0.5	10	
<i>Sisyrinchium bellum</i>					0.5					
<i>Stipa sp.</i>					0.5	75			0.5	
<b>Total Native Cover</b>	<b>57.5</b>	<b>50</b>	<b>73</b>	<b>67</b>	<b>54.5</b>	<b>86</b>	<b>39.5</b>	<b>37</b>	<b>62</b>	<b>44</b>
NNAG	5	5	0	0.5	0.5	10	5	0.5	2	0.5
NNP	0.5	27	0.5	0.5	0.5	1	0.5	50	15	15
<b>Total Non-native Cover</b>	<b>5.5</b>	<b>32</b>	<b>0.5</b>	<b>1</b>	<b>1</b>	<b>11</b>	<b>5.5</b>	<b>50.5</b>	<b>17</b>	<b>15.5</b>
Bare	30	5	16.5	2	4	3	20	2	0.5	0.5
Litter	7	13	10	30	40	1	35	10	20	40
<b>Total Bare and Litter</b>	<b>37</b>	<b>18</b>	<b>26.5</b>	<b>32</b>	<b>44</b>	<b>3</b>	<b>55</b>	<b>12</b>	<b>20.5</b>	<b>40.5</b>
<b>Total Plant Cover</b>	<b>63</b>	<b>82</b>	<b>73.5</b>	<b>68</b>	<b>55.5</b>	<b>97</b>	<b>45</b>	<b>87.5</b>	<b>79</b>	<b>59.5</b>

\*Palos Verdes Blue butterfly host plant

\*\* El Segundo Blue and Palos Verdes Blue Butterfly host plant

\*\*\* El Segundo Blue butterfly host plant

**Table 2. Alta Vicente Quantitative Vegetation Assessment (Phase 3): Relative percent cover based on 50 survey points 1 meter apart along 50m transect**

Species	AV-7	AV-8
<i>Artemesia Californica</i>	12%	2%
<i>Brickellia cordifolia</i>	2%	0%
<i>Encelia californica</i>	2%	12%
<i>Eriogonum cinereum</i>	8%	10%
<i>Eriogonum fasciculatum</i>	14%	7%
<i>Isocoma menziesii</i>	2%	2%
<i>Salvia leucophylla</i>	4%	5%
<i>Stipa sp.</i>	2%	3%
<b>Total Native Plants</b>	<b>46%</b>	<b>50%</b>
NNG	6%	20%
NNP	4%	17%
<b>Total Non-native Plants</b>	<b>10%</b>	<b>37%</b>
Bare	18%	13%
Litter	26%	0%
<b>Total Bare and Litter</b>	<b>44%</b>	<b>13%</b>
<b>Total Plant Cover</b>	<b>56%</b>	<b>87%</b>

**Table 3. Alta Vicente Quantitative Vegetation Assessment (Phase 3): Average native plant height and width in meters along 50m transect**

Species	AV-7		AV-8	
	Avg. Height (m)	Avg. Width (m)	Avg. Height (m)	Avg. Width (m)
<i>Brickellia cordifolia</i>	1.0	0.3	-	-
<i>Isocoma Menziesii</i>	1.4	1.2	0.70	0.50
<i>Artemesia Californica</i>	1.0	1.5	0.30	0.25
<i>Encelia californica</i>	0.5	0.5	0.82	0.97
<i>Eriogonum cinereum</i>	0.8	1.6	0.81	0.96
<i>Eriogonum fasciculatum</i>	1.2	2.1	1.14	1.66
<i>Salvia leucophylla</i>	1.4	2.5	1.53	2.33
<i>Stipa sp.</i>	0.5	0.3	0.68	0.28



**Table 4. Portuguese Bend Qualitative Vegetation Assessment (Phase 5): Percent cover along each 50m transect as observed along 10m swath on each side of the transect**

<b>Species</b>	<b>PB-9 (Cactus Scrub)</b>
<i>Artemisia californica</i>	15
<i>Baccharis salicifolia</i>	1
<i>Encelia californica</i>	15
<i>Eriogonum cinereum</i>	5
<i>Eriogonum fasciculatum</i>	10
<i>Heteromeles arbutifolia</i>	2
<i>Isocoma menziesii</i> var. <i>sedoides</i>	5
<i>Malacothrix saxatilis</i>	0.5
<i>Mirabilis laevis</i>	0.5
<i>Opuntia littoralis</i>	10
<i>Salvia leucophylla</i>	1
<i>Sambucus nigra</i> subsp. <i>caerulea</i>	2
<b>Total Native Cover</b>	<b>67</b>
NNAG	0.5
NNP	2
<b>Total Non-native Cover</b>	<b>3</b>
<i>Bare</i>	5
<i>Litter</i>	25
<b>Total Bare and Litter</b>	<b>30</b>
<b>Total Plant Cover</b>	<b>70</b>

**Table 5. Abalone Cove Qualitative Vegetation Assessment (Phases I and 2): Percent cover along each 50m transect as observed along 10m swath on each side of the transect**

Species	Phase 1			Phase 2		
	AC-1 (CSS)	AC-2 (CSS)	AC-3 (Mulefat Scrub)	AC-4 (Cactus Scrub)	AC-5 (CSS)	AC-6 (CSS)
<i>Artemisia californica</i>	5	15	1	10	25	13
<i>Astragalus trichopodus</i> var. <i>lonchus</i> *		1			5	2
<i>Baccharis pilularis</i>	5	10	1		1	3
<i>Baccharis salicifolia</i>			15			
<i>Brickellia californica</i>	0.5	5			1	1
<i>Corethrogyne filaginifolia</i>				0.5		0.5
<i>Cylindropuntia prolifera</i>		0.5	1	2		
<i>Encelia californica</i>	12	16	1	1	1	
<i>Eriogonum cinereum</i>	0.5					
<i>Eriogonum fasciculatum</i>	1	5				
<i>Eriogonum parvifolium</i> *	1	1			2	3
<i>Isocoma menziesii</i> var. <i>sedoides</i>	1	1		1	2	0.5
<i>Leymus condensatus</i>						0.5
<i>Lupinus succulentus</i>						0.5
<i>Malacothrix saxatilis</i>				0.5		
<i>Mirabilis laevis</i>				0.5		0.5
<i>Opuntia littoralis</i>	0.5		1	10		
<i>Opuntia oricola</i>						
<i>Peritoma arborea</i>	0.5	0.5		0.5	1	
<i>Rhus integrifolia</i>	0.5	0.5	20		10	
<i>Salvia leucophylla</i>		5		0.5	2	1
<i>Salvia mellifera</i>	1	10		2	2	5
<i>Sambucus cerulea</i>			1			
<i>Solanum douglasii</i>			1			
<i>Verbena</i> sp			1			
<b>Total % Native Cover</b>	<b>29</b>	<b>71</b>	<b>43</b>	<b>29</b>	<b>52</b>	<b>31</b>
NNAG	0	0	0	2	1	0
NNP	2	10	22	2	1	1
<b>Total % Non-native Cover</b>	<b>2</b>	<b>10</b>	<b>22</b>	<b>4</b>	<b>2</b>	<b>1</b>
Bare	35	5	20	20	5	18
Litter	35	15	15	47.5	41	50
<b>Total Bare and Litter</b>	<b>70</b>	<b>20</b>	<b>35</b>	<b>68</b>	<b>46</b>	<b>68</b>
<b>Total Plant Cover</b>	<b>31</b>	<b>81</b>	<b>65</b>	<b>33</b>	<b>54</b>	<b>32</b>

\* El Segundo Blue Butterfly host plant

**Table 6. Success Criteria Measures by Reserve**

		Percent Cover of Native Species (%)*				Percent Cover of Non-native Species (%) for all habitat types*	
Preserve	Year	Coastal Sage Scrub	Cactus Scrub <sup>1</sup>	PVB Habitat <sup>2</sup>	Mulefat Scrub	Invasive Perennial Species**	Total Non-native Species**
Alta Vicente	Year 1	10%	10%	10%			
	Year 2	20%	20%	20%			
	Year 3	>40%	>30%	30%-60% max		<15% (0% of Cal-IPC List A)**	<25%
	Year 5	>50%	>40%	30%-60% max		<15% (0% of Cal-IPC List A)**	<25%
Portuguese Bend	Year 3	>40% (≥30% perennial)	>30% (≥20% perennial and 5% cactus)				
	Year 5	>50%	>40% (≥ 10% cactus)			<25% (<5% perennials w/ no CAL-IPC List A except NNAG)**	<25% (<5% perennials w/ no CAL-IPC List A except NNAG)
Abalone Cove	Year 3	>40% (>30% perennial)	>30% (>20% perennial and >5% cacti)		>40%	<15% (0% of Cal-IPC List A)**	<25%
	Year 5	>50%	>40% (>10% cacti)		>50%	<15% (0% of Cal-IPC List A)**	<25%

\* Percentage based on visual estimates.

\*\* The NCCP success criteria allow an exception to the requirement for 0% Cal -IPC List A for non-native annual grasses. In other words, Cal-IPC List A grass species would not count toward the 0% criteria, but would count toward the 25% criteria for total non-native species cover.

<sup>1</sup> Percentage coverage of cactus species should be at least 1% for Year 1, 3% for Year 2, 5% for Year 3, and 10% for Year 5.

<sup>2</sup> From Year 3 on, there should be at least 10% coverage from *Acmispon glaber* and/or *Astragalus trichopodus* and the woody shrubs should be maintained at 10-20%.

CAL-IPC = California Invasive Plant Council

NNAG = non-native annual grass

**Table 7. Abalone Cove transect status based on success criteria measures for corresponding year**

Success Criteria							Transect Status Based on Success Criteria (Pass/Fail/On Schedule to Pass)					
		Percent Cover of Native Species (%)			Percent Cover of Non-native Species (%) for all habitat types		Phase I (Year 2)			Phase 2 (Year 1)		
Preserve	Year	Coastal Sage Scrub	Cactus Scrub	Mulefat Scrub	Invasive Perennial Species	Total Non-native Species	AC-1 (CSS)	AC-2 (CSS)	AC-3 (Mulefat Scrub)	AC-4 (Cactus Scrub)	AC-5 (CSS)	AC-6 (CSS)
Abalone Cove	Year 3	>40% (>30% perennial)	>30% (>20% perennial and >5% cacti)	>40%	<15% (0% of Cal-IPC List A)**	<25%	On schedule	On schedule	Pass (ahead of schedule)	Pass (ahead of schedule)	Pass (ahead of schedule)	On schedule

**Table 8. Alta Vicente transect status based on success criteria measures for corresponding year**

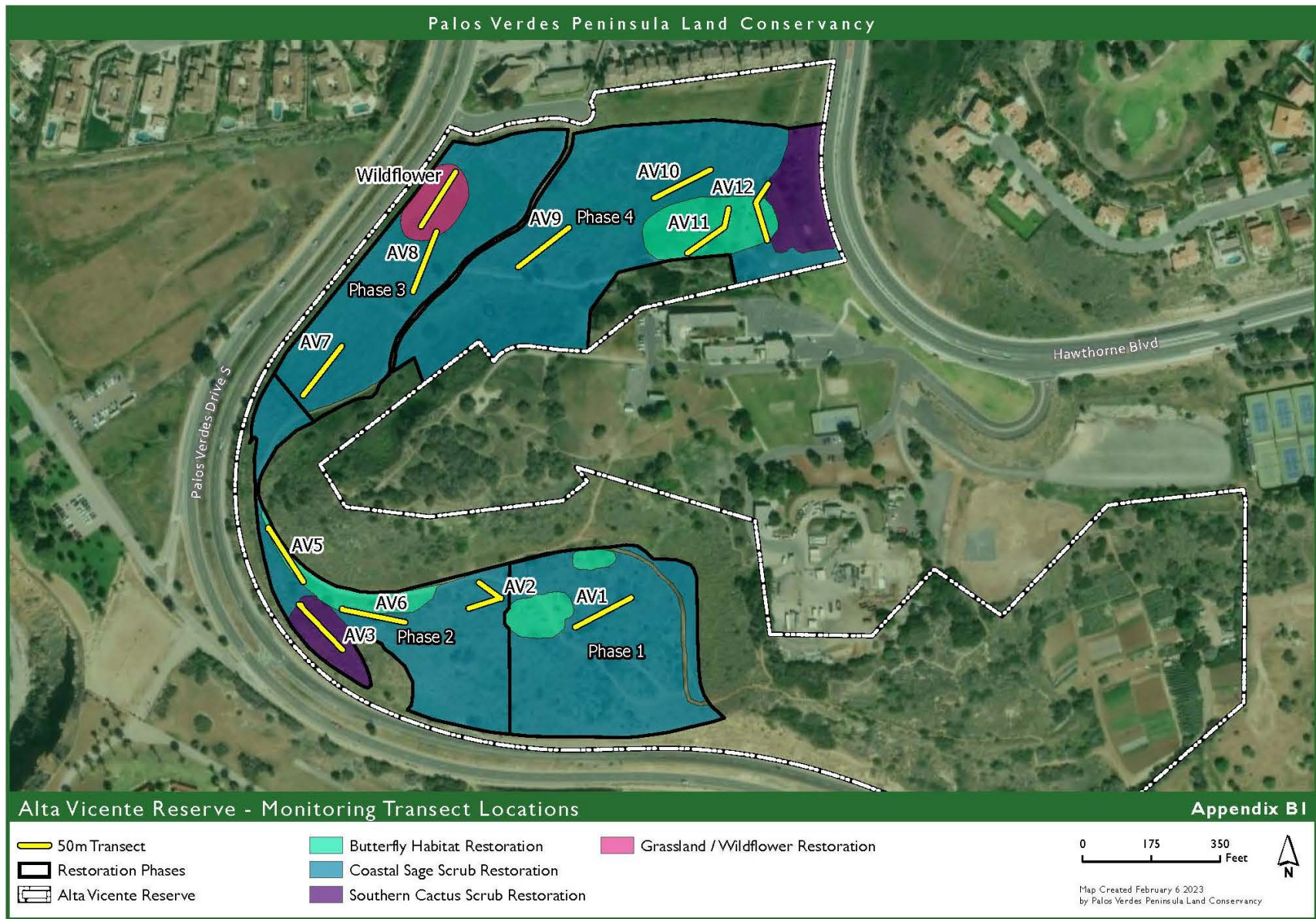
Success Criteria							Transect Status Based on Success Criteria (Pass/Fail/On Schedule to Pass)									
		Percent Cover of Native Species (%)*			Percent Cover of Non native Species (%) for all habitat types*		Phase 1+2 (Year 12)			Phase 3 (Year 5)			Phase 4 (Year 4)			
Preserve	Year	Coastal Sage Scrub	Cactus Scrub <sup>1</sup>	PVB Habitat <sup>2</sup>	Invasive Perennial Species**	Total Non-native Species**	AV-2 (Butterfly)	AV-5 (Butterfly)	AV-6 (CSS)	AV-7 (CSS)	AV-8 (CSS)	Grassland/Wildflower	AV-9 (CSS)	AV-10 (CSS)	AV-11 (Butterfly)	AV-12 (Cactus Scrub)
Alta Vicente	Year 5	>50%	>40%	30%-60% max	<15% (0% of Cal-IPC List A)**	<25%	Fail	Fail	Pass	Pass	Pass	Pass	On schedule	On schedule	On schedule	Pass (ahead of schedule)

**Table 9. Portuguese Bend transect status based on success criteria measures for corresponding year**

Success Criteria				Transect Status Based on Success Criteria (Pass/Fail/On Schedule to Pass*)		
		Percent Cover of Native Species (%)*		Percent Cover of Non-native Species (%) for all habitat types*		Phase 5 (Year 7)
Preserve	Year	Coastal Sage Scrub	Cactus Scrub <sup>1</sup>	Invasive Perennial Species**	Total Non-native Species**	PB-9 (Cactus Scrub)
Portuguese Bend	Year 5	>50%	>40% (≥ 10% cactus)	<25% (<5% perennials w/ no CAL-IPC List A except NNAG)**	<25% (<5% perennials w/ no CAL-IPC List A except NNAG)	Pass

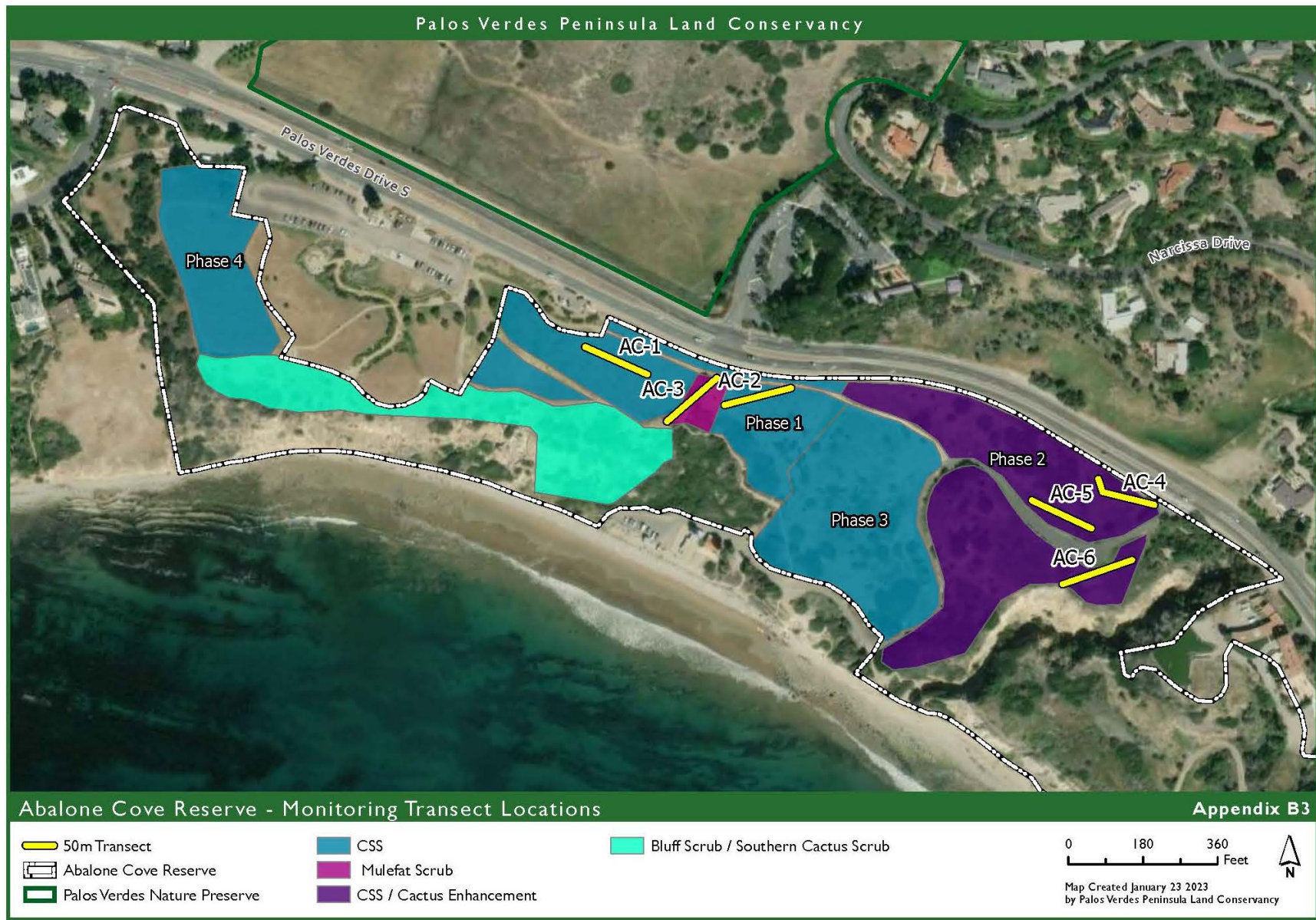


Figure I. 2022 Alta Vicente Transect Monitoring Map



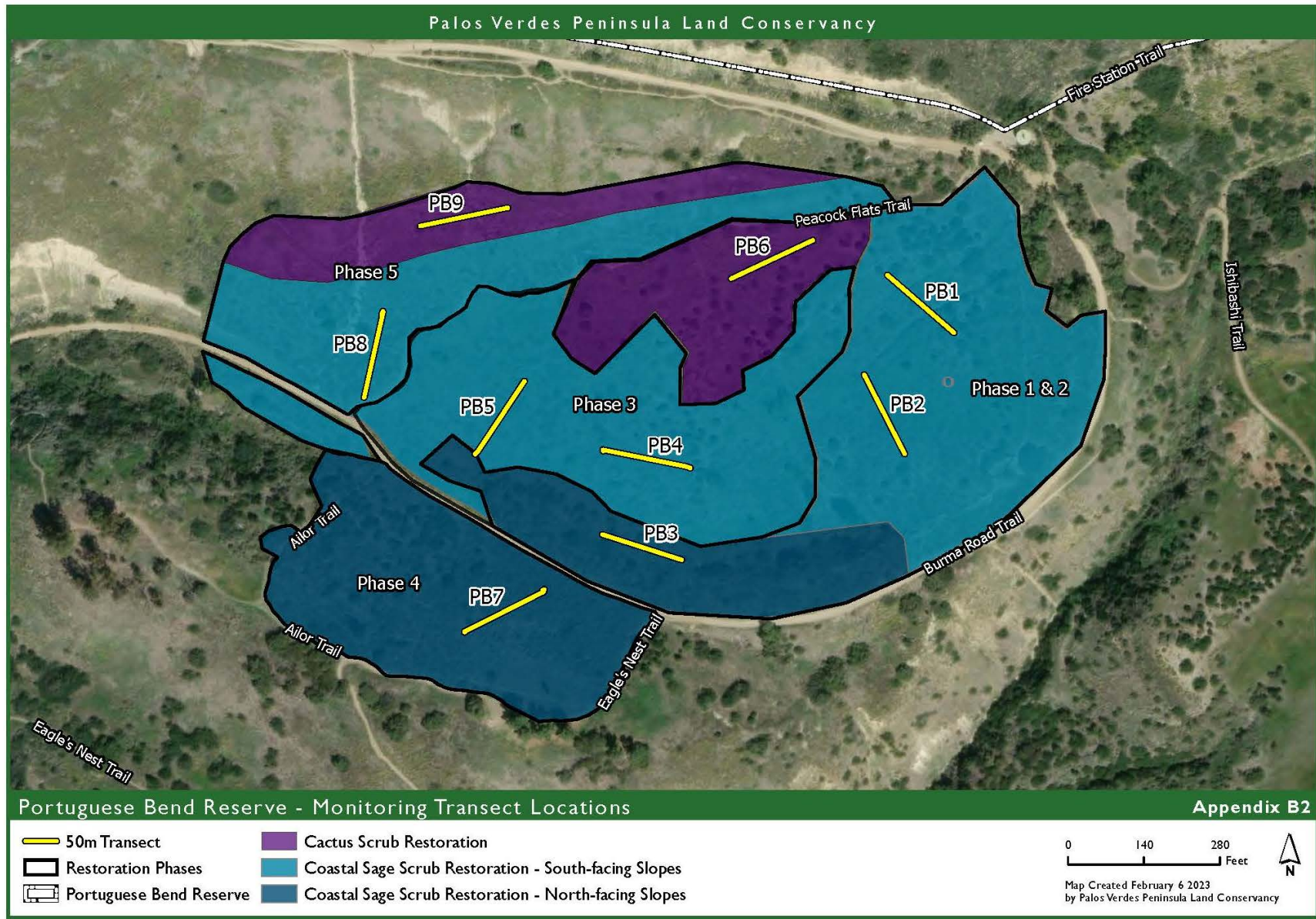


**Figure 2. 2022 Abalone Cove Transect Monitoring Map**





**Figure 3. 2022 Portuguese Bend Transect Monitoring Map**



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# **APPENDIX B I**







## **2022 RESTORATION MONITORING PHOTOS**



## Appendix B-I

### Abalone Cove Transect Images

Photos taken 6/29/2022

AC-1 Beginning	AC-1 End
	
AC-2 Beginning	AC-2 End
	
AC-3 Beginning	AC-3 End
	



AC-4 Beginning



AC-4 End



AC-5 Beginning



AC-5 End



AC-6 Beginning



AC-6 End





## Alta Vicente Transect Images

Photos taken 7/8/2022

AV-2 Beginning



AV-2 Center



AV-2 End



AV-5



A-6 Beginning



AV-6 End





AV-7 Beginning



AV-7 End



AV-8 Beginning



AV-8 End



AV-9 Beginning



AV-9 End





AV-10 Beginning



AV-10 End



AV-11 Beginning



AV-11 End



AV-12 Beginning



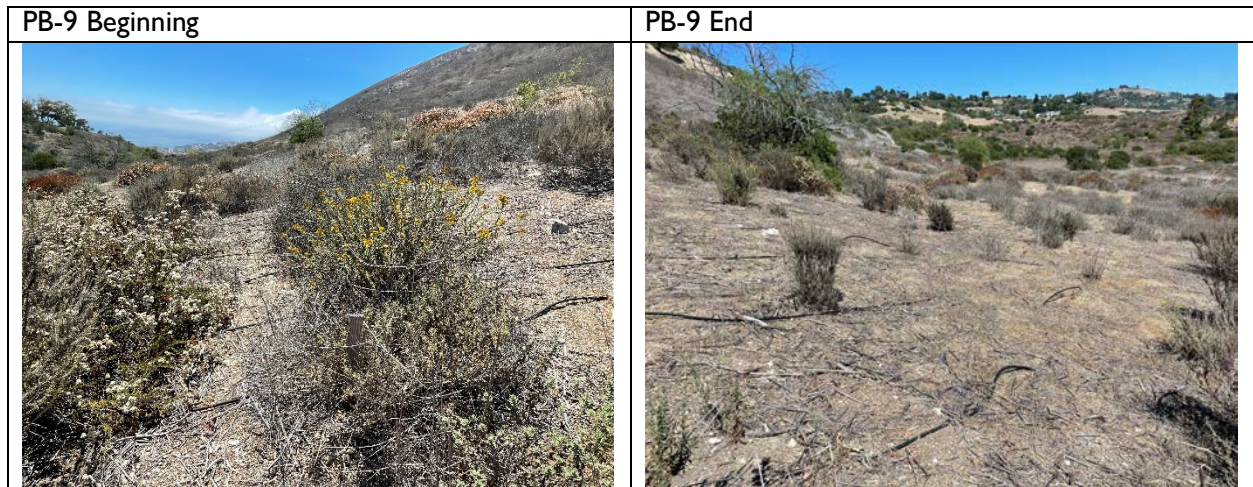
AV-12 End





## Portuguese Bend Transect Images

Photos taken 7/26/2022



# **APPENDIX C**

## **HABITAT IMPACTS**



## **Preserve Projects and Habitat Impacts Summary**

PVPLC provided monitoring and consultation for 31 projects in 2022. Three of those projects were documented as having impacts within the preserve. Below are summaries of projects that had impacts to the preserve in 2022. All other projects not reported had no impacts. Two impacts that occurred in previous years are still being assessed and are expected to be reported in the 2023 annual report. This includes a Cal Water hydrant break near Burma Road in 2021 which caused significant damage to trails and habitat and fuel modification that occurred in Malaga Canyon in approximately 2021 that impacted habitat.

In September of 2022, Southern California Edison proposed a project to maintain a power pole located within the preserve and within a restoration site. Although no habitat impacts were anticipated as part of the project and various site visits were had with PVPLC and City representatives, subsequent monitoring showed that various plants had been damaged as part of the project. A total of .06 acres were damaged and may be considered temporary impacts. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and riparian habitat. The measured area of impact is 0.06 acres of therefore the resulting restoration required is 0.12 acres of CSS/Riparian habitat.

In October of 2022, as part of a Fuel Load Reduction project, a contractor damaged native plants to gain access to non-native species populations. The damage was not pre-approved by PVPLC and PVPLC is working to mitigate the issue. The damage is expected to be temporary since no plants were removed and the extent of the damage included broken branches and stems which are expected to regrow. The area of damage was 600 sq. ft. (.01 acres) and according to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and riparian habitat. The resulting restoration required is 0.02 acres of CSS/Riparian habitat.

In November of 2022, various sections of Cal Water's main line pipe broke throughout the Portuguese Bend Preserve. As part of emergency repairs and to access the breaks, Cal Water had to clear habitat in three sections along Burma Road trail. A total of 703 square feet (.02 acres) of Coastal Sage Scrub was impacted. Local species seeding is recommended along with non-native species removal. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and riparian habitat. The measured area of impact is 0.02 acres of therefore the resulting restoration required is 0.04 acres of CSS/Riparian habitat. Further conversations need to continue with Cal Water to understand if problem sites will need to continue to be accessed for maintenance monitoring to avoid future pipe breaks.

### **Pending Projects:**

In July 2021, a Cal Water hydrant failure caused water to enter the Portuguese Bend Reserve and erode sections of trail and habitat. The location of the impacted areas are along and adjacent to

Burma Road near the entry gate; on Kelvin Canyon Trail where it crosses Kelvin Canyon Creek; and on Gary's Gulch Trail where it crosses Kelvin Canyon Creek. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and Riparian habitat. The measured area of impact is 0.44 acres of therefore the resulting restoration required is 0.88 acres of CSS/Riparian habitat. Since the project seems to have caused water flow to stop at the Kelvin Canyon Crew crossing at Gary's Gulch Trail, the cities geologist has been involved in the assessment. Repairs are expected to be completed in 2023 with an updated impact measurement and the project won't be included in the 2022 habitat impact chart.

In approximately 2021, fuel mod reduction occurred in Malaga Canyon in areas that had not been addressed before. By using goats, the city was able to reach steep slope areas that were included in the 200' fuel modification zones. Since many of these sites had never been cleared, coastal sage scrub habitat was impacted. Surveys were done after the project was completed with maps and acreage calculated. PVPLC is still working with the city to finalize calculations and the project is expected to be included in the 2023 annual report.

**Table 1. Habitat Impacts in the PVNP in 2022**

Date	Project	Impact	Location and Vegetation Type	Size	Permanent or Temporary loss of habitat*
September 2022	SCE Burma Pole Maintenance	Habitat Damage to access pole	Coastal Sage Scrub	.06 acres	Temporary
October 2022	Fuel Load Reduction	Habitat Damage to access non-native species	Coastal Sage Scrub	.01 acres	Temporary
November 2022	CalWater Burma Road pipe breaks	Habitat damage to repair breaks	Coastal Sage Scrub/Riparian	.02 acres	Permanent*

\*Further information is needed to understand if these projects will be classified as Temporary or Permanent. An assessment should be completed by the 2023 Annual Report

In previous annual reports, habitat impacts have been documented and categorized as Permanent or Temporary (Table 2). In 2023, PVPLC will survey previous Habitat Impact sites and verify status. These findings will be reported in the 2023 Annual Report, Habitat Impacts section and updated in the RPV NCCP/HCP Habitat Impact Tracking matrix.

**Table 2. Status of Previous Habitat Impacts in the PVNP**

<b>Date</b>	<b>Project</b>	<b>Impact</b>	<b>Location and Vegetation Type</b>	<b>Size</b>	<b>Permanent/ Temporary or Restoration complete as of May 2023</b>
November 2020- 2021	CalWater Vanderlip Erosion	Vanderlip trail damaged with surrounding habitat impacts	Coastal Sage Scrub	.11 acres	Temporary
Summer/Fall 2021	CalWater Rim/Burma Pipe Replacement	Damage to hillside habitat adjacent to pipeline	Coastal Sage Scrub	.24 acres	Temporary
December 2021	SCE Burma Pole Repair	Habitat damage to access pole	Coastal Sage Scrub/Riparian	.12 acres	Temporary
December 2021	CalWater Vanderlip erosion	Erosion to trailside habitat	Coastal Sage Scrub	.024 acres	Permanent
December 2021	PVPLC Fuel Load Reduction Access	Damage to native plants through access	Coastal Sage Scrub/Riparian	0.073	Temporary
July – September 2020	PVIC Trail Coastal Bluffs fence replacement	Native plants were removed or trimmed. No host plant was impacted	Vicente Bluffs along Seascape Trail; Coastal Sage Scrub	0.001	Temporary
Summer 2019	Beach School Trail Paving	Paving of natural soil surface area	Abalone Cove	.06 acres	Permanent
Fall 2019	McGee Landslide Surveys	Vegetation Clearance for Access	Throughout PVNP	.22 acres	Permanent

\*Further information is needed to understand if these projects will be classified as Temporary or Permanent. An assessment should be completed by the 2023 Annual Report

## RPV NCCP/HCP Habitat Impact Tracking Draft

City Project Name	Total Habitat Loss (Acres)		Habitat Loss in Preserve (Acres)	
	CSS allowed	Grassland allowed	CSS allowed	Grassland allowed
1. Altamira Canyon Drainage Project (Future Project)	<u>2.5</u>	<u>3</u>	<u>0</u>	<u>0</u>
Remaining	<u>2.5</u>	<u>3</u>	<u>0</u>	<u>0</u>
2. Dewatering Wells (Ongoing)	2.5	2.5	2.5	2.5
2014 City of RPV			0.08	
2016 ACLAD			0.1	
Remaining	<u>2.5</u>	<u>2.42</u>	<u>2.32</u>	<u>2.5</u>
3. Landslide Abatement Measures (Ongoing)	5	15	3.3	9.9
2012 City of RPV			0.04	
2015 City of RPV				0.1
2018 City of RPV			0.22	
Remaining	<u>5</u>	<u>14.86</u>	<u>3.04</u>	<u>9.8</u>
4 Misc. Drainage Repair in Landslide Areas (Ongoing)	10	15	6.6	9.9
2011 Repair "Archery Range" Area		0.009		
2013 City of RPV			0.009	
Remaining	<u>10</u>	<u>14.982</u>	<u>6.591</u>	<u>9.9</u>
5. PVDE Drainage Improvement Project (Future Project)	<u>5</u>	<u>15</u>	<u>0</u>	<u>0</u>
Remaining	<u>5</u>	<u>15</u>	<u>0</u>	<u>0</u>
-	-	-	-	-
6. Misc. Drainage Improvements (Ongoing)	20	60	6.6	20
2013 City of RPV			0.005	
Remaining	<u>20</u>	<u>59.995</u>	<u>6.595</u>	<u>20</u>
7. Abalone Cove Beach Project (Ongoing)	1	2	1	2
City of RPV				
Remaining	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>

City Project Name	Total Habitat Loss (Ac)		Habitat Loss in Preserve (Ac)	
	CSS allowed	Grassland allowed	CSS allowed	Grassland allowed
8. RPV Trails Plan Implementation (Future Project)	<u>4</u>	<u>10</u>	<u>2</u>	<u>5</u>
<u>Remaining</u>	<u>4</u>	<u>10</u>	<u>2</u>	<u>5</u>
9. Lower San Ramon Canyon Repair (Complete)	5	15	2.5	7.5
<i>2011 San Ramon Project</i>		<i>0.34</i>		
<u>Remaining</u>	<u>5</u>	<u>14.66</u>	<u>2.5</u>	<u>7.5</u>
10. Lower Point Vicente (Future Project)	<u>1.5</u>	<u>11.2</u>	<u>0</u>	<u>0</u>
<u>Remaining</u>	<u>1.5</u>	<u>11.2</u>	<u>0</u>	<u>0</u>
11. Palos Verdes Drive South Road Repair	5	15	5	15
<i>2010 PVDS Repair</i>				<i>1.4</i>
<u>Remaining</u>	<u>5</u>	<u>13.6</u>	<u>5</u>	<u>13.6</u>
12. Upper Point Vicente (Future Project)	2	22	1	11
<u>Remaining</u>	<u>2</u>	<u>22</u>	<u>1</u>	<u>11</u>
13. Preserve Fuel Modification	12	18	12	18
<i>2012 City of RPV</i>			<i>0.7</i>	
<u>Remaining</u>	<u>12</u>	<u>17.3</u>	<u>11.3</u>	<u>18</u>
14. Utility Maintenance and Repair	10	20	5	10
<i>2006 SCE</i>			<i>0.03</i>	
<i>2008 LA County Sanitation</i>			<i>0.01</i>	
<i>2009 Cox Cable</i>			<i>0.01</i>	
<i>2011 Cal Water</i>			<i>0.1</i>	
<i>2012 Cal Water</i>			<i>0.1</i>	
<i>2012 Sanitation District</i>			<i>0.02</i>	
<i>2013 Sanitation District</i>			<i>0.02</i>	
<u>Remaining</u>	<u>10</u>	<u>19.71</u>	<u>4.71</u>	<u>10</u>
15. Unimproved City Parks (Future Project)	<u>10</u>	<u>20</u>	<u>0</u>	<u>0</u>



City Project Name	Total Habitat Loss (Ac)		Habitat Loss in Preserve (Ac)	
	CSS allowed	Grassland allowed	CSS allowed	Grassland allowed
<u>Remaining</u>	<u>10</u>	<u>20</u>	<u>0</u>	<u>0</u>
16. Malaga Canyon Drainage Improvements (Future Project)	<u>5</u>	<u>15</u>	<u>5</u>	<u>15</u>
<u>Remaining</u>	<u>5</u>	<u>15</u>	<u>5</u>	<u>15</u>
17. Other Misc. Projects	20	60	10	30
2010 Lightman				0.9
2010 Cal Water/City Burma Road Repair			0.4	
2010 Ginsburg Grading			0.5	
2012 Fire			12.7	
2012 Sunshine			0.01	
2012 Fire				0.2
2012 Unauthorized Trail Creation			0.12	
2013 Private Resident			unknown	unknown
2013 Chase Bank			0.45	
2016 Toyon/Peppertree Grading			0.3	
2016 CalWater			0.1	
2018 CalWater (Forrestal)			0.1	0.02
<u>Remaining</u>	<u>20</u>	<u>45.67</u>	<u>8.02</u>	<u>28.88</u>
Total Acreage of Habitat Loss Allowed	120.5	318.7	62.5	155.8
Habitat lost	5.5	20.643	3.424	2.62
<u>Remaining Acreage of Habitat Loss Allowed</u>	<u>115</u>	<u>298.057</u>	<u>59.076</u>	<u>153.18</u>

Private Covered Projects	Total Habitat Loss (acres)	
	CSS allowed	Grassland allowed
Lower Filiorum Development	11.9	70
Portuguese Bend Club Remedial Grading	3	10
Fuel Modification for Private Projects	10	20
Plumtree Development	2.8	19.7
Misc. Private Projects throughout the City	71.8	143.1
	99.5	262.8

**APPENDIX D**

**2022 TARGETED EXOTIC  
REMOVAL PROGRAM FOR  
PLANTS (TERPP)**

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## **1.0 INTRODUCTION**

The Palos Verdes Peninsula Land Conservancy (PVPLC), as preserve habitat manager for the Palos Verdes Nature Preserve (PVNP), conducts strategic weed control activities throughout the year as part of the Targeted Exotic Plant Removal Plan for Plants (TERPP). As directed in the draft Rancho Palos Verdes Natural Communities Conservation Plan (NCCP), PVPLC selects five acres or 20 small sites of invasive plants for removal each year. The overall goal of this program is to systematically target invasive species throughout the PVNP to increase the success of native plant growth and create greater habitat opportunities for wildlife.

The TERPP is an element of the NCCP that includes a specific protocol for ranking exotic species populations and strategically removing those species over time (Appendix D1-D7). The 2022 TERPP Report documents PVPLC's effort over the past year to remove exotic plant species that threaten native vegetation in the PVNP. It details the methods of assessing the threat of individual exotic species to native vegetation, field methods for removal and provides site-specific documentation related to every completed removal site.

## **2.0 SITE ASSESSMENT**

Invasive species control is included in PVPLC's annual conservation planning strategy where Stewardship staff prioritize potential TERPP sites and assess best practice methods for removal. PVPLC staff locate TERPP sites to target for the calendar year, assess the best method for eradication, photo document and map the population/s, and conduct weed removal accordingly.

The PVPLC weighs potential areas for exotic species control based on several criteria:

1. Threat to native vegetation, particularly populations of NCCP-covered species;
2. Feasibility of eradication, which includes limiting disturbance to native habitat and ease of access, and;
3. Invasiveness of exotic species, using a synthesized rating system drawn from plant invasiveness rankings from both the California Invasive Plant Council (Cal-IPC) and the California Department of Food and Agriculture (CDFA).

Through regular property surveys and viewing fine scale imagery using Geographic Information Systems (GIS), PVPLC plans for invasive species control across the entire Preserve area.

A sample of the TERPP field data collection form is in Appendix D1. The forms provide basic information about the species targeted, including site identification number and property, approximate location, removal methods used, and general comments related to the removal activities. PVPLC also includes photo documentation: staff photographs the sites before work

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takes place and after the removal of the individual or population of exotic species. Photo documentation not only confirms completion of the work, but also provides a snapshot of the surrounding environment at the time of the TERPP-related activities. This record helps to create a historical record of the presence of non-native plant species on the sites, which may inform future restoration efforts. Beginning in 2017, PVPLC began using the GIS based application, Survey 123, to track the TERPP sites. Using this application has assisted with efficiency and accuracy in data collection and reporting.

Each TERPP site is tracked via GIS, a tool that aids planning and monitoring efforts. PVPLC has treated 164 TERPP sites since 2006. As *Euphorbia terracina* is a high priority invasive and may take multiple treatments to control, these populations are treated in numerous years. In 2022, invasive species focus was centered on the large perennial, Acacia (*Acacia cyclops*) with 2 new removal sites which totaled approximately 12.7 acres as well as mowing of 5.5 acres of Black Mustard and non-native grasses at 1 new site. Previous TERPP sites were visited by staff and volunteers and hand pulling of any seedlings was implemented. Small Acacias were hand pulled in 5 previous fuel load reduction sites. Additionally, 12.5 acres of Black Mustard and non-native grasses were mowed at 2 previous sites.

### **3.0 FIELD METHODS**

PVPLC staff uses best practice, the most effective and least intrusive, methods at all times when conducting TERPP-related activities. High priority areas may occur near rare or endangered biological populations. Care is taken to minimize soil erosion, fire risk, disturbance to surrounding native vegetation and further dispersal of the exotic species. PVPLC utilizes a combination of methods to conduct exotic species removal, generally limited to the following:

- Mechanical removal - staff may use tools with motorized blades to fell larger species;
- Manual removal - staff conduct most removals by hand pulling and/or with small hand tools for pruning and cutting;
- Chemical control - trained staff applies herbicides at the appropriate phase of vegetative growth;
- Grazing prior to seed set, and;

The Stewardship Manager developed all recommendations for chemical pest control and senior staff supervises field staff and contractors in sensitive areas. Additionally, field staff has an integral role in the TERPP and often have crucial, site-specific knowledge related to the sites.

### **4.0 2022 TREATMENTS**

In 2022, PVPLC treated 2 new populations of Acacia which totaled approximately 12.7 acres and mowed 5.5 acres of Black Mustard and non-native grasses at 1 new location. Non-native

palms were removed at 3 new sites. *Cortaderia selloana* was removed at 3 new sites. 5 previous acacia sites were maintained and hand weeded. 12.5 acres of Black Mustard and non-native grasses were mowed in 2 previously treated sites. *Euphorbia terracina* was treated at 3 previous sites.

**Table 1. 2022 TERPP Sites and Treatment Description**

Species:	Preserve:	Stand ID:	Stand Size:	No. Individuals:	Treatment Type:	Percent Treated
<i>Euphorbia terracina</i>	Abalone Cove	AC_EuTe_02	300ft-600ft	50-100	Herbicide	75-100
<i>Euphorbia terracina</i>	Agua Amarga	AA_EuTe_02	600ft-1000ft	200-500	Herbicide	75-100
<i>Acacia cyclops</i>	Agua Amarga	AA_AcCy_01	300ft-600ft	50-100	Hand pull	75-100
<i>Euphorbia terracina</i>	Alta Vicente	AV_EuTe_02	>1000ft	>1000	Hand pull	50-75
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_01	>1000ft	500-1000	Hand pull	75-100
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_02	>1000ft	500-1000	Hand pull	75-100
<i>Acacia cyclops</i>	Filiorum	FI_AcCY_03	>1000ft	100-200	Hand pull	75-100
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_04	>1000ft	200-500	Hand pull	75-100
<i>Acacia cyclops</i>	Portuguese Bend	PB_AcCy_26	>1000ft 11.2acres	200-500	Other	75-100
<i>Acacia cyclops</i>	Portuguese Bend	PB_AcCy_27	>1000ft 1.5acre	50-100	Other	75-100
<i>Acacia cyclops</i>	Vicente Bluffs	VB_AcCy_07	10ft-100ft	1-10	Tree Removal	75-100
<i>Acacia cyclops</i>	Vicente Bluffs	VB_AcCy_06	100ft-300ft	1-10	Tree Removal	75-100
<i>Washingtonia robusta</i>	Vicente Bluffs	VB_Palm_02	1ft-10ft	1-10	Tree Removal	75-100
<i>Washingtonia robusta</i>	Vicente Bluffs	VB_Palm_01	1ft-10ft	1-10	Tree Removal	75-100
<i>Washingtonia robusta</i>	Vicente Bluffs	VB_Palm_03	300ft-600ft	1-10	Tree Removal	75-100
<i>Acacia cyclops</i>	Vicente Bluffs	VB_AcCy_05	300ft-600ft	1-10	Tree Removal	75-100
<i>Cortaderia selloana</i>	Vicente Bluffs	VB_CoSe_01	300ft-600ft	1-10	Herbicide	75-100
<i>Cortaderia selloana</i>	Vicente Bluffs	VB_CoSe_04	1ft-10ft	1-10	Other	75-100
<i>Cortaderia selloana</i>	Vicente Bluffs	VB_CoSe_05	600ft-1000ft	1-10	Other	75-100
<i>Brassica nigra</i>	Portuguese Bend	PB_BrNi_01	>1000ft 5.5 acres	>1000	Brushcut	75-100
<i>Brassica nigra</i>	Portuguese Bend	PB_BrNi_02	>1000ft 7 Acres	>1000	Brushcut	75-100
<i>Brassica nigra</i>	Portuguese Bend	PB_BrNi_03	>1000ft 5.5 Acres	>1000	Brushcut	75-100



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## **5.0 REFERENCES**

- California Invasive Plant Council 2006. California Invasive Plant Inventory. February. California Invasive Plant Council: Berkley, CA.
- Palos Verdes Peninsula Land Conservancy 2007a. 2007 Targeted Exotic Removal Plan for Plants for the Portuguese Bend Nature Preserve For the Rancho Palos Verdes Draft Natural Community Conservation Plan and Habitat Conservation Plan. April.
- Palos Verdes Peninsula Land Conservancy 2008. 2008 Annual Report for the Targeted Exotic Removal Program for Plants for the Portuguese Bend Nature Preserve For the Rancho Palos Verdes Draft Natural Community Conservation Plan and Habitat Conservation Plan. September.
- State of California 2007. Department of Food and Agriculture Division of Plant Health & Prevention Services Noxious Weed Ratings. Retrieved September 2007, from: <[http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/pdfs/noxiousweed\\_ratings.pdf](http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/pdfs/noxiousweed_ratings.pdf)>.
- URS 2006. City of Rancho Palos Verdes Draft Natural Community Conservation Plan and Habitat Conservation Plan. June 9.

## APPENDIX D1: SAMPLE TERPP FORM

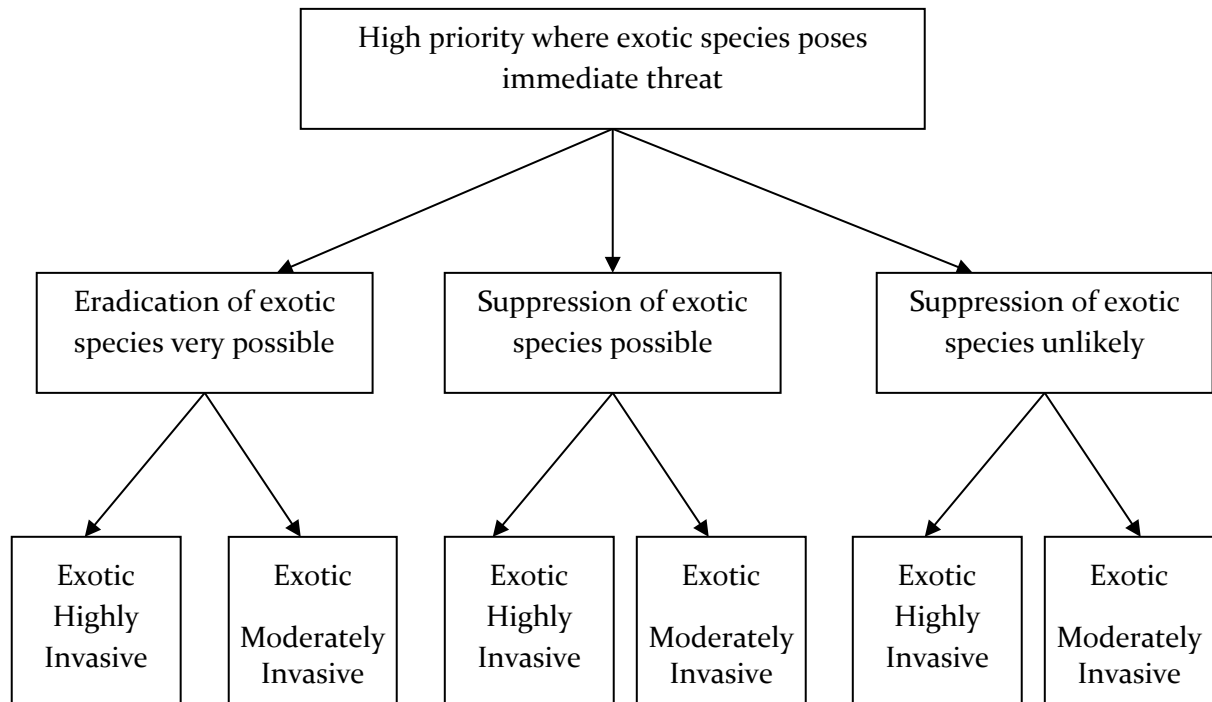
### Invasive Weed Mapping Field Datasheet

<b>Survey Type</b> New Infestation    Assessment    Treatment			<b>Surveyor's Name</b>		
<b>Date</b>			<b>Location Description:</b>		
<b>Species</b>					
<b>Preserve</b>					
<b>Stand ID</b>			<b>Surrounding Vegetation Type:</b> cactus scrub                      coastal sage scrub riparian                              bluff grassland                          non-native plants trail                                  non-native annual grass (NNAG) Other		
<b>Stand Size</b> 1 ft <sup>2</sup> - 10 ft <sup>2</sup> 10 ft <sup>2</sup> - 100 ft <sup>2</sup> 100 ft <sup>2</sup> - 300ft <sup>2</sup> 300 ft <sup>2</sup> - 600 ft <sup>2</sup> 600 ft <sup>2</sup> - 1000 ft <sup>2</sup> > 1000 ft <sup>2</sup>			<b>Stand Comments:</b>		
<b>No. Individuals</b> 1-10                      10-50                      50-100 100-200                      200-500                      500-1000                      >1000					
<b>Percent Canopy Cover</b> 1-5%    5-10%    10-25%    25-50%    50-75%    +75%					
<b>Plant Phenology</b> Flowering    Non-Flowering    Fruiting					
<b>Plant Age</b> Seedling    Juvenile    Mature    Dead					
<b>Treatment Type</b> Hand pull    Herbicide    Hand-pull/Herbicide Weed-whip    Mulch    Tree removal    Other			<b>Treatment Comments:</b>		
<b>Area Treated</b> 1 ft <sup>2</sup> - 10 ft <sup>2</sup> 10 ft <sup>2</sup> - 100 ft <sup>2</sup> 100 ft <sup>2</sup> - 300 ft <sup>2</sup> 300 ft <sup>2</sup> - 600 ft <sup>2</sup> 600 ft <sup>2</sup> - 1000 ft <sup>2</sup> > 1000 ft <sup>2</sup>					
<b>Percent of Infestation Treated</b> 0-25%    25-50%    50-75%    75-100%					
<b>Photo Image Numbers:</b>			<b>Additional Comments:</b>		
Stand ID Example: AC_EuTe_01_YYYY.MM.DD.jpg Preserve abbreviations: AA - Agua Amarga    AC - Abalone Cove    AV - Alta Vicente    CP - Chandler Preserve    DF - DFSP    GF - George F FI - Filiorum    FO - Forrestal    OT - Ocean Trails    PB - Portugeuese Bend    SR - San Ramon TS - Three Sisters    VB - Vicente Bluffs    VN - Vista del Norte    WP - White Point    OR - Other					

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## APPENDIX D2: FLOWCHART FOR HIGH PRIORITY THREAT TO NATIVE VEGETATION

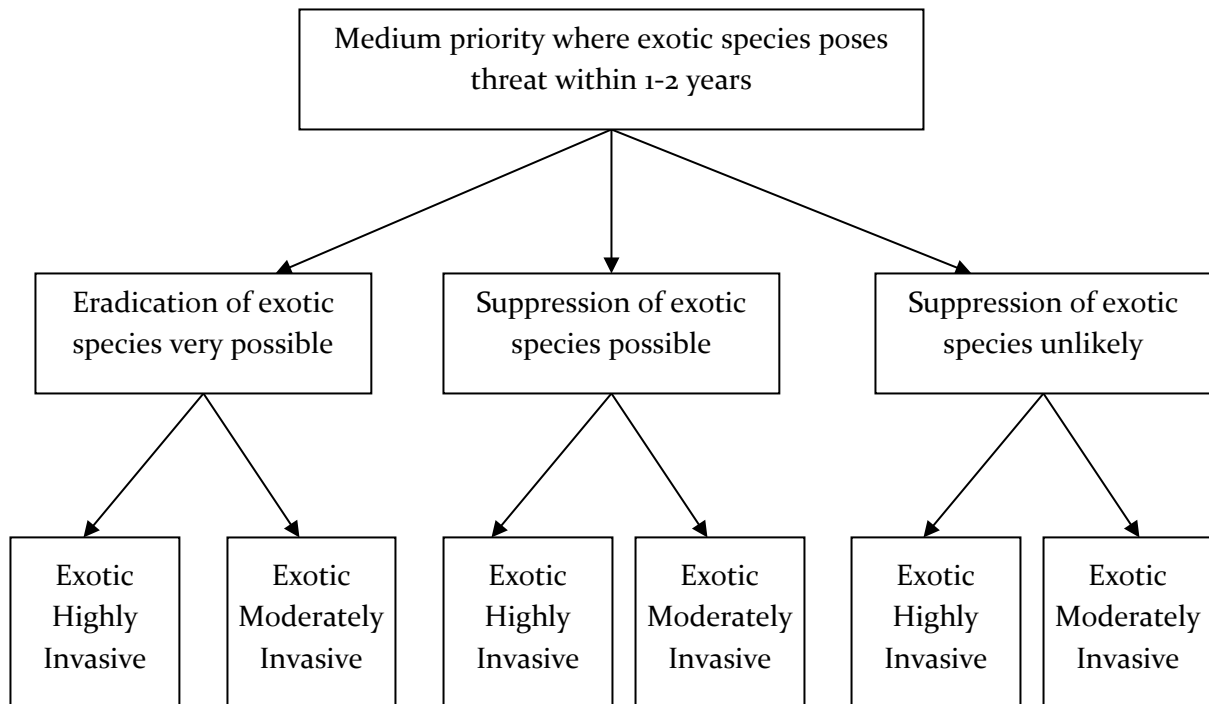


### Priority Ranking For Control of Exotic Species

1-3= Low priority    4-7= Medium priority    8-10= High priority

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## APPENDIX D3: FLOWCHART FOR MEDIUM PRIORITY DEGREE OF THREAT TO NATIVE VEGETATION

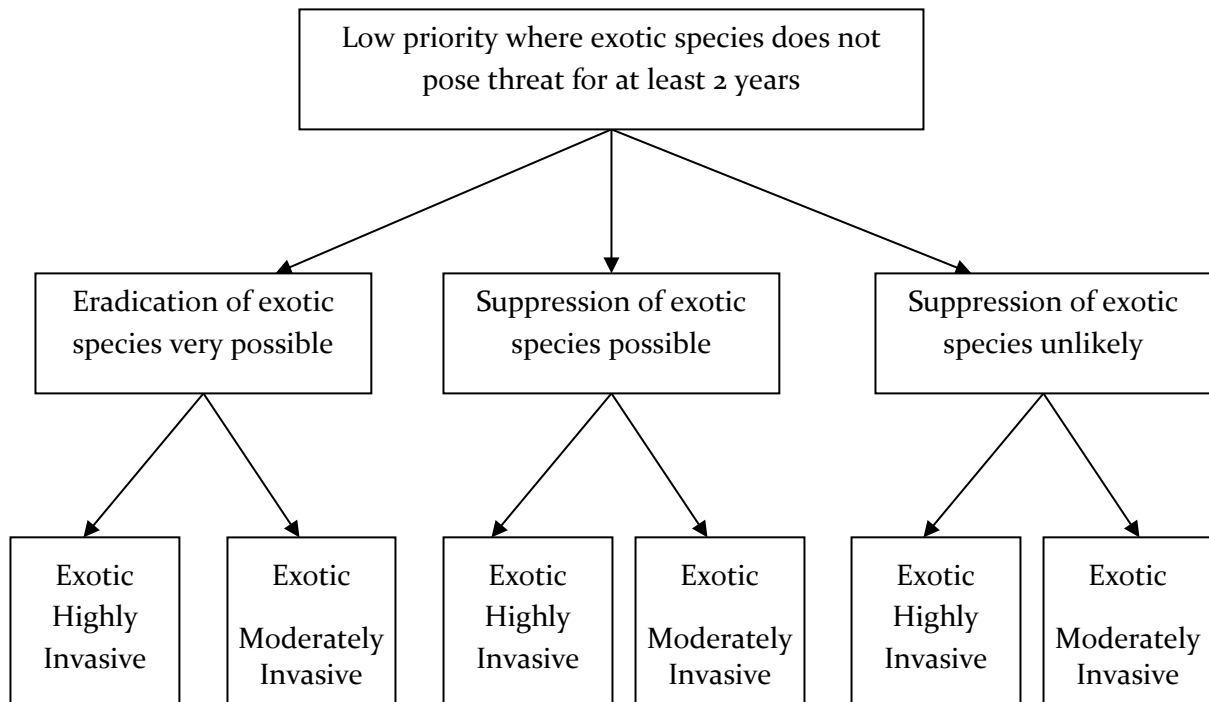


### Priority Ranking For Control of Exotic Species

1-3= Low priority    4-7= Medium priority    8-10= High priority

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## APPENDIX D4: FLOWCHART FOR LOW PRIORITY DEGREE OF THREAT TO NATIVE VEGETATION



### Priority Ranking For Control of Exotic Species

1-3= Low priority    4-7= Medium priority    8-10= High priority



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## **APPENDIX D5: HIGHLY INVASIVE SPECIES**

<b><u>Genus species</u></b>	<b><u>Common name</u></b>
<i>Aegilops triuncialis</i>	Barbed goatgrass
<i>Alternanthera philoxeroides</i>	Alligatorweed
<i>Ammophila arenaria</i>	European beachgrass
<i>Arundo donax</i>	Giant reed
<i>Brassica tournefortii</i>	Sahara mustard
<i>Bromus madritensis</i> ssp. <i>rubens</i>	Red brome
<i>Bromus tectorum</i>	Cheatgrass
<i>Carpobrotus edulis</i>	Highway iceplant
<i>Carthamus lanatus</i>	Woolly starthistle
<i>Centaurea solstitialis</i>	Yellow starthistle
<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	Spotted knapweed
<i>Cortaderia jubata</i>	Jubatagrass
<i>Cortaderia selloana</i>	Pampasgrass
<i>Cytisus scoparius</i>	Scotch broom
<i>Delairea odorata</i>	Cape-ivy
<i>Egeria densa</i>	Brazilian egeria
<i>Ehrharta calycina</i>	Purple veldtgrass
<i>Eichhornia crassipes</i>	Water hyacinth
<i>Elymus caput-medusae</i>	Medusahead
<i>Euphorbia virgata</i>	Leafy spurge;
<i>Genista monspessulana</i>	French broom

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<i>Hedera canariensis</i>	Algerian ivy
<i>Hedera helix</i>	English ivy
<i>Hydrilla verticillata</i>	Hydrilla
<i>Lepidium latifolium</i>	Perennial pepperweed
<i>Limnobiium spongia</i>	South American spongeplant
<i>Ludwigia hexapetala</i>	Creeping waterprimrose
<i>Ludwigia peploides</i>	Floating water primrose
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Myriophyllum aquaticum</i>	Parrotfeather
<i>Myriophyllum spicatum</i>	Spike watermilfoil
<i>Onopordum acanthium</i>	Thistle
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Salvinia molesta</i>	Water fern
<i>Sesbania punicea</i>	Scarlet wisteria
<i>Spartina alterniflora</i> x <i>S. foliosa</i>	Smooth hybrid cordgrass
<i>Spartina densiflora</i>	Dense-flowered cordgrass
<i>Spartium junceum</i>	Spanish broom
<i>Tamarix chinensis</i>	Chinese tamarisk, fivestamen tamarisk
<i>Tamarix gallica</i>	French tamarisk
<i>Tamarix parviflora</i>	Smallflower tamarisk
<i>Tamarix ramosissima</i>	Tamarisk
<i>Ulex europaeus</i>	Common gorse

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## **APPENDIX D6: MODERATELY INVASIVE SPECIES**

<b><u>Genus species</u></b>	<b><u>Common Name</u></b>
Acacia dealbata	Silver wattle
Acroptilon repens	Russian knapweed
Ageratina adenophora	Sticky eupatorium
Ailanthus altissima	Tree-of-heaven
Alhagi maurorum	Camelthorn
Arctotheca calendula	Fertile capeweed
Arctotheca prostrata	Capeweed
Asparagus asparagoides	Bridal creeper
Asphodelus fistulosus	Onion weed
Atriplex semibaccata	Australian saltbush
Avena barbata	Slender oat
Avena fatua	Wild oats
Brachypodium distachyon	Annual false-brome
Brachypodium sylvaticum	False-brome
Brassica nigra	Black mustard
Bromus diandrus	Ripgut brome
Carduus nutans	Musk thistle
Carduus pycnocephalus	Italian thistle
Carpobrotus chilensis	Iceplant
Carrichtera annua	Ward's weed
Centaurea calcitrapa	Purple starthistle

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<i>Centaurea diffusa</i>	Diffuse knapweed
<i>Centaurea jacea</i> ssp. <i>pratensis</i>	Meadow knapweed
<i>Centaurea melitensis</i>	Tocalote
<i>Centaurea virgata</i> var. <i>squarrosa</i>	Squarrose knapweed
<i>Chondrilla juncea</i>	Skeleton weed
<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>	Boneseed
<i>Cirsium arvense</i>	Canada thistle
<i>Cirsium vulgare</i>	Bull thistle
<i>Clematis vitalba</i>	Old man's beard
<i>Colocasia esculenta</i>	Taro root
<i>Conium maculatum</i>	Poison-hemlock
<i>Cotoneaster franchetii</i>	Orange cotoneaster
<i>Cotoneaster lacteus</i>	Milkflower cotoneaster
<i>Cotoneaster pannosus</i>	Silverleaf cotoneaster
<i>Cynara cardunculus</i>	Artichoke thistle
<i>Cynodon dactylon</i>	Bermuda grass
<i>Cynoglossum officinale</i>	Dog bur
<i>Cynosurus echinatus</i>	Hedgehog dogtail
<i>Cytisus striatus</i>	Portuguese broom
<i>Dipsacus fullonum</i>	Common teasel
<i>Dipsacus sativus</i>	Fullers teasel
<i>Dittrichia graveolens</i>	Stinkwort
<i>Ehrharta erecta</i>	Ehrharta

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<i>Elaeagnus angustifolia</i>	Russian olive
<i>Emex spinosa</i>	Devil's thorn
<i>Fallopia japonica</i>	Japanese knotweed; Mexican bamboo
<i>Fallopia sachalinensis</i>	Giant knotweed
<i>Festuca arundinacea</i>	Kentucky fescue
<i>Festuca myuros</i>	Rat-tail fescue
<i>Festuca perennis</i>	Italian ryegrass
<i>Ficus carica</i>	Edible fig
<i>Foeniculum vulgare</i>	Fennel
<i>Gazania linearis</i>	Gazania
<i>Genista monosperma</i>	Bridal veil broom
<i>Glyceria declinata</i>	Mannagrass
<i>Halogeton glomeratus</i>	Halogeton
<i>Hirschfeldia incana</i>	Short-pod mustard
<i>Holcus lanatus</i>	Common velvet grass
<i>Hordeum marinum</i>	Mediterranean barley
<i>Hordeum murinum</i>	Foxtail
<i>Hypericum canariense</i>	Canary Island St. Johnswort
<i>Hypochaeris radicata</i>	Rough cat's-ear
<i>Isatis tinctoria</i>	Dyer's woad
<i>Lepidium chalepense</i>	Whiteweed
<i>Lepidium draba</i>	Heart-podded hoary cress
<i>Leucanthemum vulgare</i>	Ox-eye daisy



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<i>Limonium duriusculum</i>	European sea lavender
<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>	Dalmatian toadflax
<i>Linaria vulgaris</i>	Yellow toadflax
<i>Lythrum hyssopifolium</i>	Hyssop loosestrife
<i>Mentha pulegium</i>	Pennyroyal
<i>Mesembryanthemum crystallinum</i>	Crystalline iceplant
<i>Myoporum laetum</i>	False sandalwood
<i>Nicotiana glauca</i>	Tree tobacco
<i>Oxalis pes-caprae</i>	Bermuda buttercup
<i>Pennisetum setaceum</i>	Purple fountain grass
<i>Phalaris aquatica</i>	Harding grass
<i>Potamogeton crispus</i>	Curly-leaved pondweed
<i>Rumex acetosella</i>	Sheep sorrel
<i>Saccharum ravennae</i>	Ravennagrass
<i>Salsola soda</i>	Glasswort
<i>Schinus terebinthifolius</i>	Brazilian pepper tree
<i>Senecio glomeratus</i>	Australian fireweed
<i>Spartina anglica</i>	English cordgrass
<i>Stipa capensis</i>	Cape ricegrass
<i>Tanacetum vulgare</i>	Common tansy
<i>Torilis arvensis</i>	Hedgeparsley
<i>Triadica sebifera</i>	Chinese tallow tree
<i>Vinca major</i>	Periwinkle

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Washingtonia robusta

Mexican fan palm

Zostera japonica

Dwarf eelgrass

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## APPENDIX D7: WATCH LIST

<b><u>Scientific Name</u></b>	<b><u>Common Name</u></b>
Acacia baileyana	Cootamundra wattle
Acacia cyclops	Cyclops acacia
Acacia latifolia	Sydney golden wattle
Acacia paradoxa	Kangaroothorn
Acacia pycnantha	Golden wattle
Acacia saligna	Orange wattle
Acaena novae-zelandiae	Biddy-biddy
Aegilops cylindrica	Jointed goatgrass
Alopecurus pratensis	Meadow foxtail
Alyssum corsicum	Yellowtuft
Alyssum murale	Yellowtuft
Ambrosia trifida	Giant ragweed
Araujia sericifera	Bladderflower
Berberis darwinii	Darwin barberry
Berteroa incana	Hoary alyssum
Buddleja davidii	Butterfly bush
Carex pendula	Hanging sedge
Casuarina equisetifolia	Beach sheoak
Catharanthus roseus	Madagascar periwinkle
Cenchrus echinatus	Southern sandbur

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<i>Cenchrus longispinus</i>	Mat sandbur
<i>Centaurea diluta</i>	Spotted knapweed
<i>Cestrum parqui</i>	Willow jessamine
<i>Chasmanthe floribunda</i>	African cornflag
<i>Cytisus multiflorus</i>	White Spanish broom
<i>Cytisus proliferus</i>	Tagasaste
<i>Datura inoxia</i>	Pricklyburr
<i>Dipogon lignosus</i>	Okie bean
<i>Dipsacus laciniatus</i>	Cutleaf teasel
<i>Dittrichia viscosa</i>	False yellowhead
<i>Echium plantagineum</i>	Patterson's curse
<i>Eucalyptus cladocalyx</i>	Sugargum
<i>Euphorbia lathyris</i>	Caper spurge
<i>Fallopia bohemica</i>	Bohemian knotweed
<i>Galega officinalis</i>	Professorweed
<i>Genista linifolia</i>	Mediterranean broom
<i>Geranium lucidum</i>	Shining geranium
<i>Grevillea robusta</i>	Silkoak
<i>Gunnera tinctoria</i>	Chilean gunnera
<i>Gypsophila paniculata</i>	Baby's breath
<i>Helianthus tuberosus</i>	Jerusalem artichoke
<i>Heliotropium amplexicaule</i>	Clasping heliotrope
<i>Heracleum mantegazzianum</i>	Giant hogweed

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Hyparrhenia hirta	Tambookie grass
Hypericum androsaemum	Sweet-amber
Hypericum grandifolium	Large-leaved hypericum
Ipomoea indica	Blue morningglory
Kniphofia uvaria	Redhot poker
Lantana camara	Lantana
Lathyrus latifolius	Perennial sweet pea
Leptospermum laevigatum	Australian tea tree
Malephora crocea	Coppery mesembryanthemum
Maytenus boaria	Mayten
Myoporum laetum	False sandalwood
Nardus stricta	Matgrass
Nothoscordum gracile	False garlic
Oncosiphon piluliferum	Globe chamomile
Onopordum illyricum	Illyerian thistle
Orobanche aegyptiaca	Egyptian broomrape
Paraserianthes lophantha	Plume acacia
Parthenium hysterophorus	Santa Maria feverfew
Paspalum urvillei	Vasey's grass
Paspalum vaginatum	Seashore paspalum
Passiflora tarminiana	Banana passionfruit
Peganum harmala	African-rue
Pennisetum villosum	Feathertop

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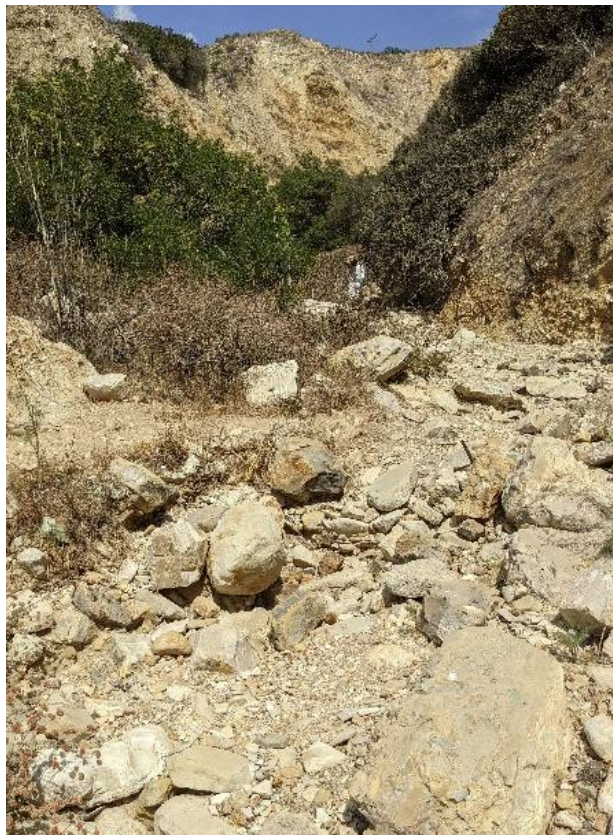
<i>Persicaria wallichii</i>	Himalayan knotweed
<i>Pittosporum undulatum</i>	Victorian box
<i>Plecostachys serpyllifolia</i>	Petite-licorice
<i>Polygala myrtifolia</i>	Myrtle-leaf milkwort
<i>Pyrus calleryana</i>	Callery pear
<i>Rhamnus alaternus</i>	Italian buckthorn
<i>Romulea rosea</i> var. <i>australis</i>	Rosy sandcrocus
<i>Rytidosperma caespitosum</i>	Wallabygrass
<i>Salpichroa organifolia</i>	Lily of the valley vine
<i>Salsola ryanii</i>	Ryan's Russian thistle
<i>Scabiosa atropurpurea</i>	Pincushion flower
<i>Scolymus hispanicus</i>	Goldenthistle
<i>Senecio linearifolius</i>	Fireweed groundsel
<i>Solanum aviculare</i>	New Zealand nightshade
<i>Solanum carolinense</i>	Carolina horsenettle
<i>Sphaerophysa salsula</i>	Alkali swainsonpea
<i>Stipa brachychaeta</i>	Punagrass
<i>Stipa tenuissima</i>	Mexican feathergrass
<i>Thinopyrum junceiforme</i>	Russian wheatgrass
<i>Ventenata dubia</i>	North Africa grass
<i>Verbena bonariensis</i>	Tall vervain
<i>Zygophyllum fabago</i>	Syrian beancaper

# 2022 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS (TERPP) PHOTOS and Maps

## Abalone Cove

AC\_Eu\_02

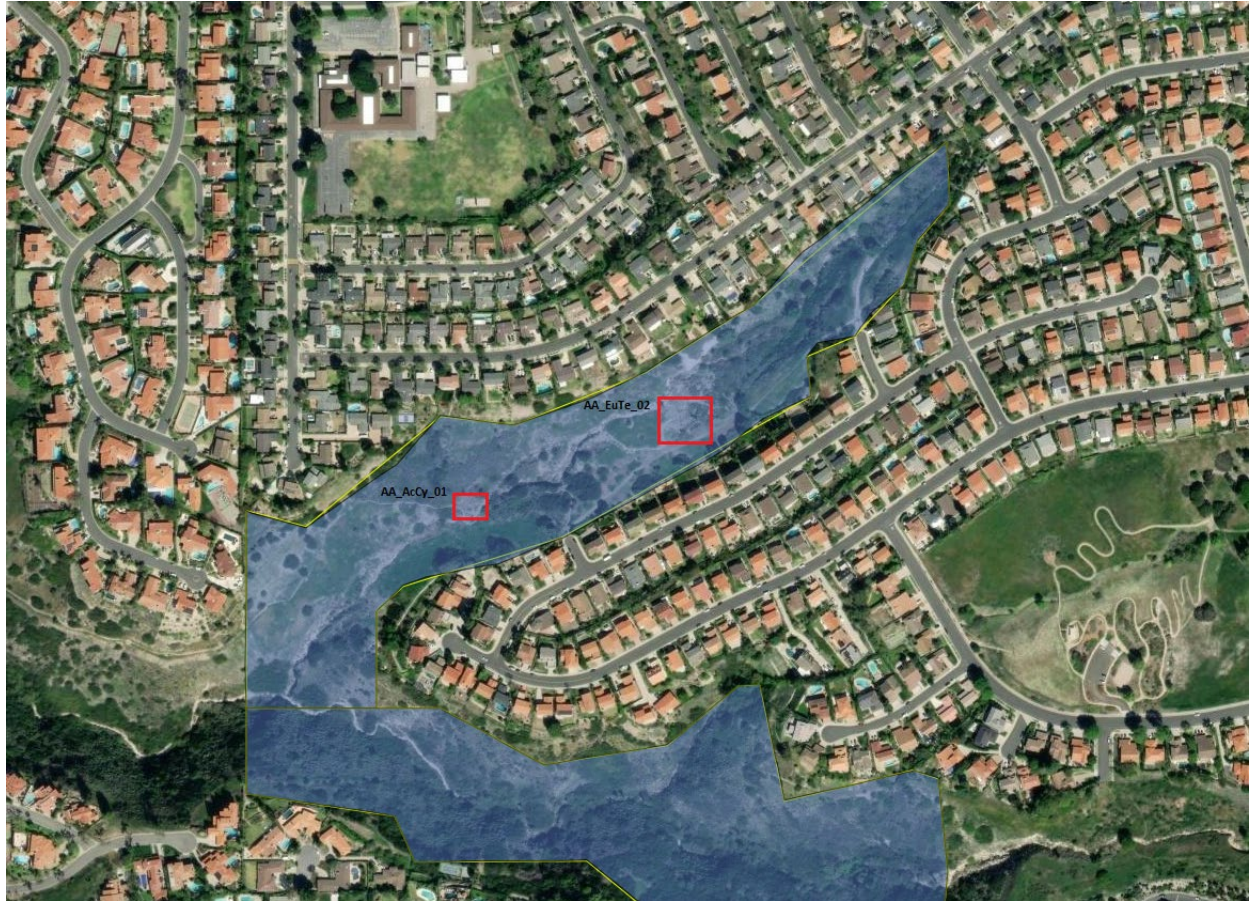






## Agua Amarga

**AA\_AcCy\_01; AA\_EuTe\_02**









## Alta Vicente

**AV\_EuTe\_02**









## Filiorum

**FI\_AcCy\_01; FI\_AcCy\_02; FI\_AcCy\_03; FI\_AcCy\_04**















## Portuguese Bend

**PB\_AcCy\_26; PB\_AcCy\_27**



































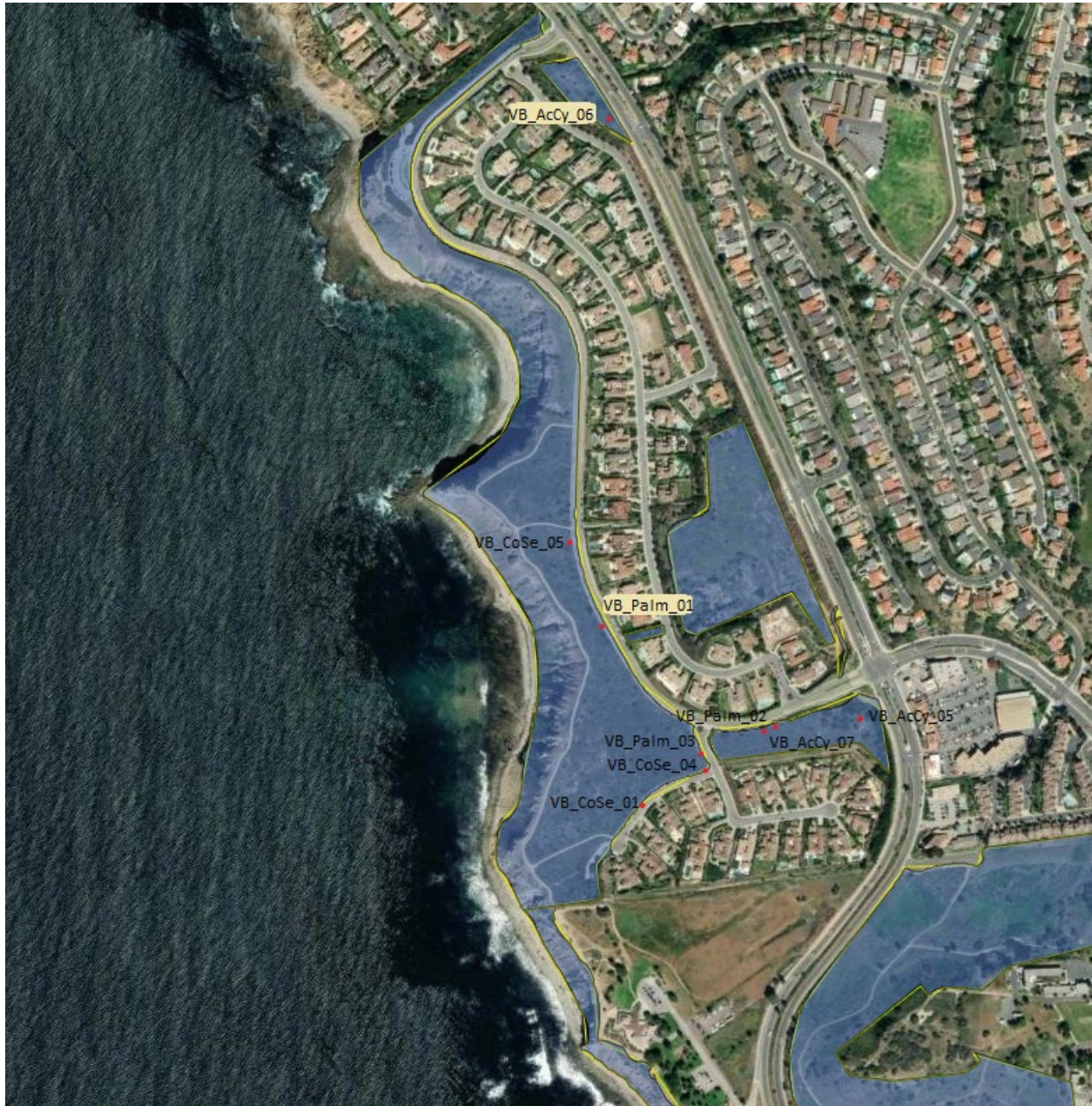






## Vicente Bluffs

**VB\_AcCy\_05; VB\_AcCy\_06; VB\_AcCy\_07; VB\_CoSe\_01; VB\_CoSe\_04;  
VB\_CoSe\_05; VB\_Palm\_01; VB\_Palm\_02; VB\_Palm\_03**



























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# **APPENDIX E**

## **COMMUNITY SCIENCE AND EDUCATION PROGRAMS**

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## **1.0 INTRODUCTION**

PVPLC implements an integrated approach to stewardship by involving students and community volunteers in programs that addresses specific conservation issues related to the management of the Palos Verdes Nature Preserve. In 2022, high school and university students as well as community members participated in research that not only satisfied their educational and/or personal goals, but also contributed to informing PVPLC land management activities. The Community Science Program, initiated in fall 2013, has brought volunteers to PVPLC for focused studies in the preserves. Community Science projects completed in 2022 include the Cactus Wren Monitoring Program and the Wildlife Tracking Program.

University professors are crucial for the success of research, as they provide expertise and technical guidance in managing several research projects. Land Conservancy staff provides access to the preserve as well as technical support and local knowledge to participants.

This report covers the Research and Education Program's activities via the major categories:

- High School Research
- University Researchers
- Non-student Research conducted
- Community Science Programs

## **2.0 HIGH SCHOOL RESEARCH**

High school students are important to PVPLC's field research. By participating in PVPLC's research program with professionals and university researchers, high school students obtain field and analytical skills in the natural science fields. Additionally, students increase their appreciation of nature while expanding their awareness of opportunities that the natural science fields have to offer. As a result, PVPLC students often win honors in science fairs and are able to leverage their experience for gaining entrance into top universities, satisfying course credits, or obtaining paid internships. In winter 2022, a high student began a long-term phenology study on Palos Verdes blue butterfly host plants, rattlepod (*Astragalus trichopodus*) and deerweed (*Acmispon glaber*), in various PVNP reserves. By the end of the project, the student will have gained vegetation surveying skills and additional field experience for a career in conservation.

## **3.0 UNIVERSITY STUDENTS**

College students from local universities participate in research under the umbrella of the Conservancy's Intern and Community Science programs (Table. 2). Students participate in activities integral to land management and conservation, which provides the students valuable hands-on experience. PVPLC's stewardship staff conducts a variety of surveys throughout the

preserves for assessing habitat quality as well as documenting the progress of our restoration efforts.

In addition to gaining work experience, many students leverage their internships for entrance into a professional job or graduate school. While the Conservancy benefits from their work, the students benefit from experience and training that will benefit them in future careers.

**Table 2.** 2022 Collegiate research conducted

<b>Student</b>	<b>Project</b>	<b>Academic Institution</b>
CSU Long Beach students	<i>Lunada Canyon Restoration and Research Proposals</i>	CSU Long Beach

### **3.0 NON-STUDENT RESEARCH CONDUCTED**

The Land Conservancy facilitates non-student research as much as possible, including creating our own research studies to assist in our management goals. These projects are managed by staff and largely done by Land Conservancy interns.

**Table 3.** 2022 Non-student research conducted or facilitated

<b>Researcher</b>	<b>Project</b>	<b>Academic Institution</b>
Lilly Lopez (PVPLC Intern)	<i>Wildlife camera remote monitoring</i>	PVPLC
Lilly Lopez and Sara Cuadra (PVPLC Interns)	<i>Cactus Wren habitat suitability study</i>	PVPLC



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## 4.0 COMMUNITY SCIENCE PROGRAMS

Volunteers are important for PVPLC, not only helping with growing plants, habitat restoration, guiding walks, and special events, but also with science research and education. Our volunteers travel from throughout the Palos Verdes Peninsula and Los Angeles to help out.

The Community Science program blossomed in 2013 with the initiation of the Cactus Wren Program along with the ongoing Wildlife Tracking Program. The initial Cactus Wren Program resulted in detailed analysis of how the birds utilize mature cactus scrub habitat and newly-restored habitat at Alta Vicente Reserve. In addition, the volunteers were able to

obtain detailed documentation of a single pair of cactus wrens as the wrens built a nest, incubated eggs, and successfully fledged three chicks. Monitoring work in 2022 focused on cactus wren occupancy of specific delineated cactus patches within the Palos Verdes Nature Preserve. This information described varying levels of cactus wren occupancy across the Preserve and made possible the inference of breeding activity based on a number of criteria. Results can be found in the attached Cactus Wren Monitoring report.



*Volunteers learn the basics of cactus wren observations before starting the first Community Science Cactus Wren monitoring*

The 2022 Wildlife Tracking Program started in the fall of 2022 and finishes in March 2023, this program began with training the volunteers for tracking coyotes, red fox, and gray fox, among many other species in the Preserve. Further training and practice were also available for volunteers throughout the program duration. Once volunteers were confident in identifying tracks and scat of a particular species, they individually conducted regular surveys along specific routes. The data were submitted to the Conservancy for use in its management using a program called Survey123 for ArcGIS allowing for more efficient data analysis and reporting. A map was also created to illustrate the location of scat or track observations, results can be found in the attached wildlife tracking report.

Motion-sensor cameras were captured both images and video of wild canid species. High quality videos allowed for the identification of individual coyotes providing insight into wildlife population's dynamics and movement throughout the Preserve. With a donation of four cameras, and the associated equipment, the Land Conservancy was able to increase the reach of the wildlife camera program. An intern Lilly Lopez was recruited to implement and manage these camera traps and organize and analyze the resulting data.

# Coastal Cactus Wren

(*Campylorhynchus brunneicapillus*)

## Community Science Monitoring 2022



PO Box 3472  
Palos Verdes Peninsula  
California, 90724  
T 310-541-7613  
F 310-541-7623  
[www.pvplc.org](http://www.pvplc.org)



Report by: Olivia Jenkins

PVPLC Community Science Volunteers

## INTRODUCTION

The coastal cactus wren (*Campylorhynchus brunneicapillus*) (CACW, cactus wren) on the Palos Verdes Peninsula is a special status species that lives exclusively in coastal sage scrub habitat areas. They prefer areas of at least one acre in size containing 30% prickly pear cactus (*Opuntia spp.*) and large specimens of coastal cholla (*Cylindropuntia prolifera*). Habitat preferences for nesting are strict, with nesting substrate almost entirely restricted to prickly pear and cholla (Rea and Weaver 1990). Ninety percent of their foraging time is spent on the ground, feeding on insects year-round, and feeding on fruit and plants during cooler months. Adult birds are highly sedentary and tend to return to the same breeding territory each year. In a 1993-1997 study on the Palos Verdes Peninsula, ornithologist Jon Atwood found that 65% of the juveniles dispersed less than one kilometer from their natal territory (Atwood 1998). The wren's natural tendency to stay close to its natal territory and not move great distances underscores the importance of having quality habitat throughout the preserves.

Following the formal establishment of the Community Science Cactus Wren Program in 2014, volunteer work focused on assessing how CACW utilize their habitat. The goal was to obtain data that would inform the Conservancy how to better manage cactus habitat for the bird and to build new habitat. Those years were quite successful in meeting that goal, as we now have a better understanding of how close the wrens stay to their habitat and how much they explore developing habitat (infrequently, unless they are feeding growing chicks and need to expand their forage area).

Despite the ability of previous surveys to identify the CACW behavior relating to dispersal, locating areas of CACW inhabitation has proven challenging. As shown by biologist Dan Cooper, who conducted comprehensive triennial cactus wren surveys in 2009, 2012, 2015, 2018 and in 2021 with PVPLC biologists, the numbers of CACW has varied over time, counting the same number of territories in 2009 and 2015 (25) and more counted in 2012 (48) and a precipitous decrease in 2018 (5), and 7 territories in 2021. (Cooper Ecological Monitoring 2021) Because of the triennial frequency of the surveys, it is difficult to determine whether or not these trends are true or an artifact of sampling, but the overall trend is troubling.

Participants in the Community Science Cactus Wren Program can help answer the question: Where are cactus wrens found in the preserves year-to-year? To address this question, teams of volunteers regularly hike the trails, noting when CACW are heard and/or seen, beginning in April and continuing through July. This period coincides with the more active period for the wrens when they are nesting and caring for newly fledged chicks, as they are more inconspicuous in the non-breeding season. These repeated visits provide data that indicates where birds are likely to be, and the variation of their distribution year-to-year to augment the triennial surveys conducted by the Conservancy's biologist.

## METHODS

### Study Area

The study area was within eight reserves (Abalone Cove, Alta Vicente, Filiorum, Forrestal, Ocean Trails, Portuguese Bend, San Ramon, and Three Sisters) of the Palos Verdes Nature Preserve located in the city of Rancho Palos Verdes, CA. The reserves surveyed were those which had been documented to support CACW activity or extensive patches of prickly pear (*Opuntia littoralis* and *O. oricola*) and coastal cholla (*Cylindropuntia prolifera*) (Cooper Ecological Monitoring 2013).



**Figure 1.** Study area within the Palos Verdes Peninsula Nature Preserve.



## Data Collection

Volunteers for the Community Science Program met prior to the start of the monitoring season to learn how to identify CACW in their habitat and how to record field observations on the mobile app Survey123. The use of this app was new to the program in 2020. This app streamlines the data collection, analysis and organization process and allows for real time QA/QC by PVPLC. If any nests were found, the volunteers were asked to estimate the location on a map and send it to the PVPLC Biologist to digitize either via ArcGIS Collector in the field or ArcGIS Pro. If necessary, teams were formed for the monitoring season, pairing more experienced volunteers with those having little or no birding experience. The volunteers then took to the field outfitted with binoculars, a spotting scope, or cameras equipped with telephoto lenses.

The volunteers conduct at least two surveys for each month of the survey period (March through August). Volunteers walked their predetermined trail route documenting visual or audial observations of CACW. This information was recorded on field data sheets. Additionally, weather and wind observations were included because the birds' presence is impacted unduly by weather. No surveys were conducted during rainy days and high winds greater than 19 mph (30 km/hr). Surveys were typically conducted during late morning. All electronic field observations were archived in the Conservancy's database, and maps depicting wren inhabitation were archived in PDF format on the Conservancy's server.

## Data Analysis

Collected data were analyzed on the basis of four criteria that describe the level of CACW inhabitation specific to each cactus patches surveyed. These criteria allowed each cactus patch to receive a rating category reflecting the level of CACW inhabitation observed. These ratings assist in the interpretation of



survey data and specifically allow for the inference, in general terms, of potential CACW behavior, habitat quality, and other factors relative to inhabitation. Categorization is also helpful in providing a scale of inhabitation for each cactus patch that can be mapped. Subsequent ratings associated with each patch were mapped using ArcGIS Software which allowed for a color gradient to describe the various inhabitation ratings throughout the surveyed reserves as well as a map depicting the highest rating found within each reserve (Appendix A).

## **Inhabitation Rating Categories**

Categories were developed to assist in the interpretation of survey data and to infer in general terms potential CACW behavior, habitat quality, and other factors related to CACW inhabitation. This categorization is also helpful in providing a scale of inhabitation that can be mapped such that different levels of inhabitation may be compared to each other. Categorical ratings based on four descriptors were extracted from the data:

### Inhabitation Descriptors (4):

#### **1) Observation Rate**

# of visits with a CACW observation / total number of visits

#### **2) Multiple Month Observation**

Sighting of a CACW in more than one month of the survey period

#### **3) Multiple CACW Observation**

Sighting of multiple CACWs during a single survey or site visit.

#### **4) Nest**

Sighting of a nest that appears to have been used by CACW within the survey period.

### Inhabitation Rating Categories (5):

#### **RARE**

Indicates rare habitation of a cactus patch, which is defined by an observation rate below 25% and a lack of any additional inhabitation descriptor. Rare habitation is expected to include behaviors associated with short term inhabitation such as foraging or dispersal and suggests a lack of nesting. A patch categorized as “rare” may also indicate poor habitat quality or the presence of residence inhibiting factors (i.e. competition, predation, or disturbance).

#### **OCCASIONAL**

Indicates occasional habitation of a cactus patch, which is defined as an observation rate below 25% and having one or more additional inhabitation descriptors associated with that patch. Occasional habitation is expected to include behaviors associated with short term inhabitation (i.e. foraging or dispersal) and suggests a lack of nesting. A patch categorized as “occasional” may also indicate poor habitat quality or the presence of residence-inhibiting factors.

#### **PERIODIC**

Indicates periodic habitation of a cactus patch, which is described by an observation rate of 26-50% and one or more additional inhabitation descriptors. Periodic habitation is expected to include behaviors such as repeated visitation for foraging and/or dispersal. This rating could be considered a weak

indicator of nesting. A patch categorized as “periodic” may also indicate higher quality habitat and a decrease in residence inhibiting factors in compared to un-ranked or patches ranked patches or those ranked as “rare” or “occasional”.

## REGULAR

Indicates regular habitation of a cactus patch, which is defined as an observation rate of 50-75% and at least two additional inhabitation descriptors. A patch categorized as “regular” may indicate CACW nesting, high quality habitat, and a lack of residence-inhibiting factors.

## CONSISTENT

Indicates consistent habitation of a cactus patch, which is defined as an observation rate of 75-100% and at least two additional inhabitation descriptors. A patch categorized as “consistent” may be a strong indicator of CACW nesting, high quality habitat, and a lack of residence-inhibiting factors.

## RESULTS

**Table 1.** Inhabitation criteria and rating of cactus patches where CACW were observed in 2022.

Reserve	Cactus Patch ID	Total # Surveys	# Surveys with CACW Present	# of CACW Observed	Multiple CACW	Multiple Month Observed	CACW Nest	CACW Observation Rate (%)	Inhabitation Rating
Alta Vicente	AV 2	30	19	21	x	x	x	63	CONSISTENT
Alta Vicente	AV 4	2	2	2	x			100	CONSISTENT
Alta Vicente	AV 5	7	5	5	x	x		71	REGULAR
Alta Vicente	AV 7	2	1	1				50	OCCASIONAL
Alta Vicente	AV 9	3	3	4	x	x		100	CONSISTENT
Filiorum	Fi 1	1	1	1				100	RARE*
Filiorum	Fi 4	7	6	8	x	x	x	86	CONSISTENT
Ocean Trails B	OT 10	1	1	1				100	REGULAR
Ocean Trails B	OT 11	11	11	21	x	x	x	100	CONSISTENT
Ocean Trails B	OT 7	1	1	4	x			100	RARE*
Ocean Trails B	OT 9	1	1	2	x			100	RARE*
Three Sisters	TS 1	1	1	3	x			100	RARE*
Three Sisters	TS 10	2	1	1				50	OCCASIONAL
Three Sisters	TS 7	16	15	26	x	x	x	94	CONSISTENT
Three Sisters	TS 8	1	1	1				100	RARE*

\*A CACW was observed but too few surveys were performed at a patch to determine an accurate inhabitation rating

Red rows indicate the high likelihood of cactus wren breeding within associated cactus patch.

**Figure 1: Inhabitation Rating in Cactus Patches at Alta Vicente Reserve**

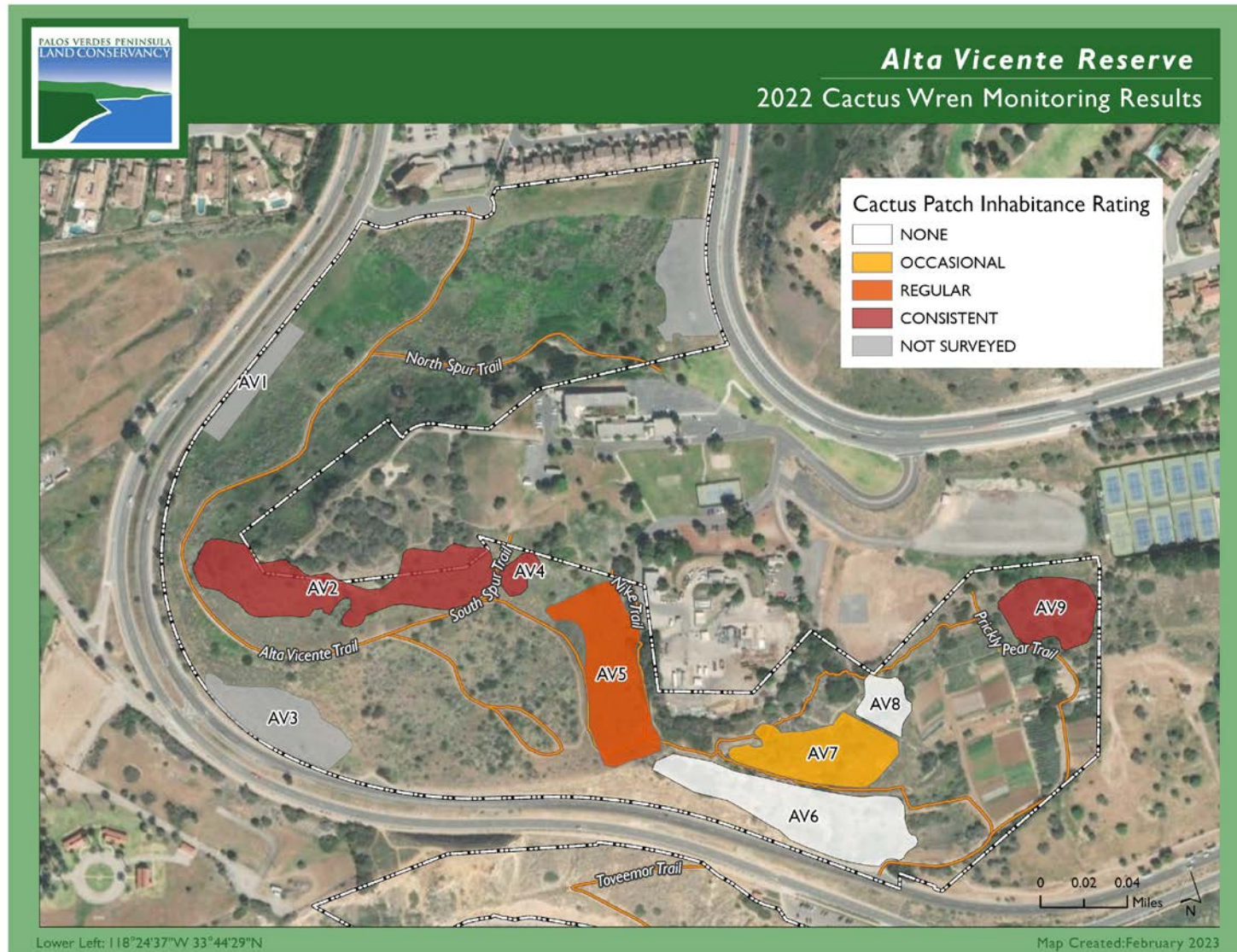




Figure 2: Inhabitation Rating in Cactus Patches at Three Sisters and Filiolum Reserves

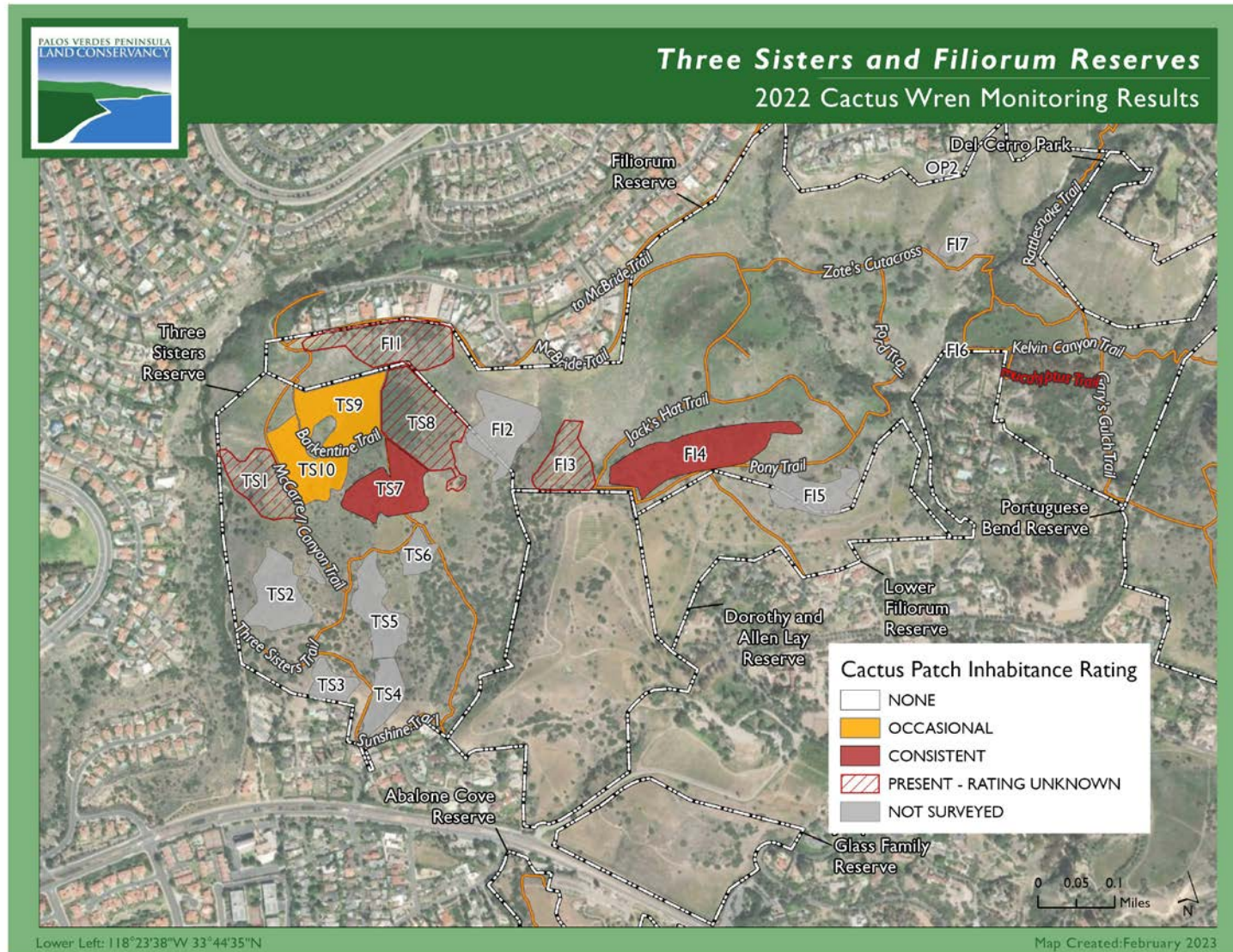




Figure 3: Inhabitation Rating in Cactus Patches at Ocean Trails and San Ramon Reserves

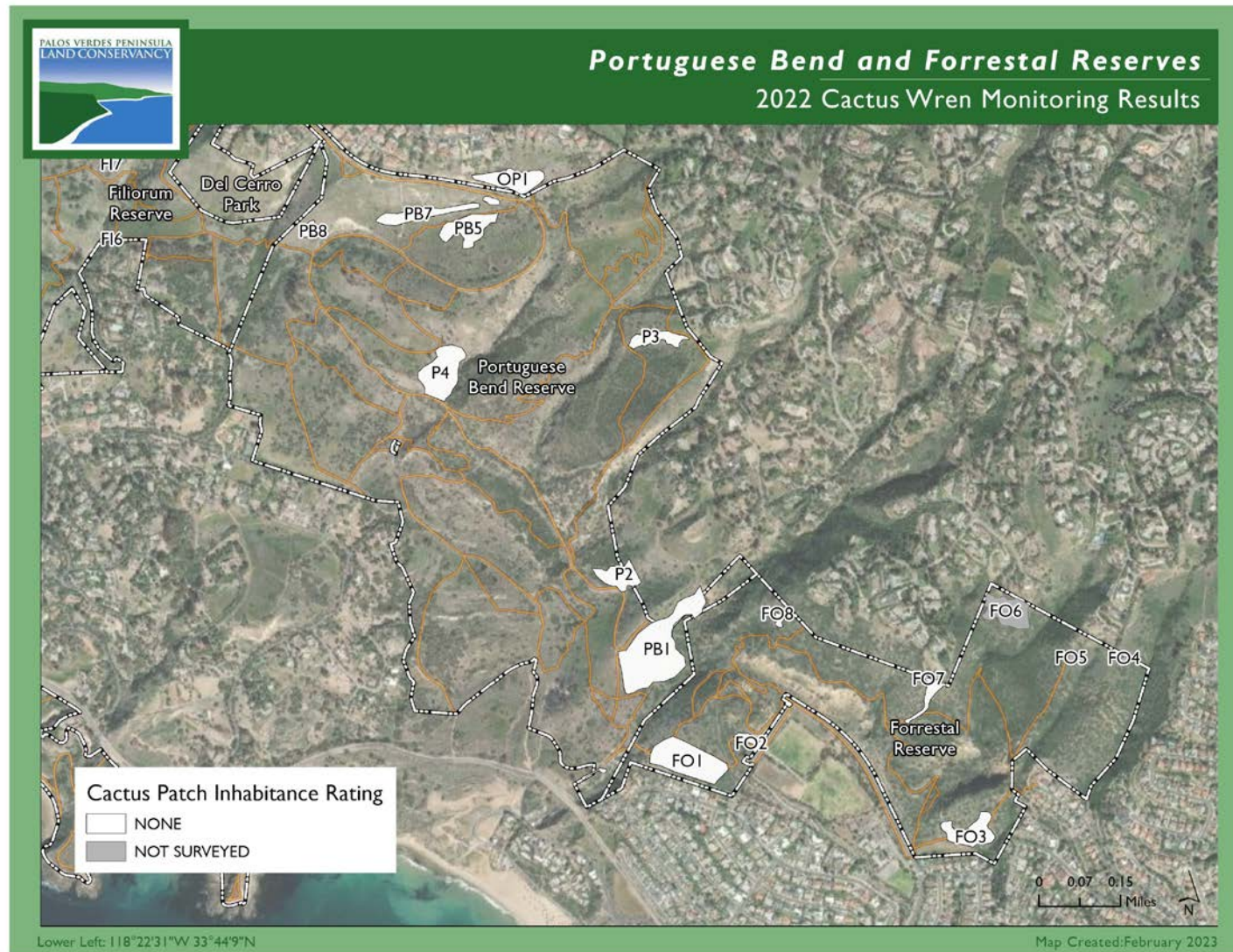


**Figure 4: Inhabitation Rating in Cactus Patches at Abalone Cove Reserve**





**Figure 4: Inhabitation Rating in Cactus Patches at Portuguese Bend and Forrestal Reserves**



## DISCUSSION

Over the last decade the cactus wren population of the Palos Verdes Nature Preserve have been experiencing a decline in observed territorial breeding behavior with similar declines being expected in their actual population size.

The 2022 breeding season for cactus wren was monitored by the Community Science Cactus Wren Monitoring Program coordinated by the Palos Verdes Peninsula Land Conservancy. In recent years the volunteer program noted an overall reduced number of cactus wren breeding territories as well as overall observations of the species. The cactus wren was exclusively found in reserves providing the highest quality habitat with large expanses of cactus (*Opuntia littoralis*, *O. oricola*, and *Cylindropuntia prolifera*) and specifically mature cactus plants. These locations, Alta Vicente, Filiorum, Three Sisters and Ocean Trails are considered “core habitat” or locations of central importance to cactus wren breeding in previous years. In 2022 the “core” areas of Alta Vicente, Three Sisters/Filiorum, and Ocean Trails were still occupied by CACW (Table 1; Figures 1-5). Both Alta Vicente and Three Sisters/Filiorum Reserves had three confirmed nesting sites (Table 1). Nests were present in Alta Vicente, Three Sisters, Filiorum, and Ocean Trails Reserves. Juvenile CACW were observed at both Ocean Trails, Three Sisters, and Alta Vicente Reserves, a good sign of nesting success. Still, the almost exclusive use of core habitat could signal nesting stress, which causes cactus wren to return to known suitable habitat patches.

In 2021, a sole male that did not attract a mate was observed at Abalone Cove. In 2022, no cactus wren were observed in Abalone Cove. However, we are continuing new restoration phases at Abalone Cove, planting coastal sage scrub and cactus scrub habitat and exposing overtopped mature cactus, so we expect to observe cactus wren activity in future years. Additionally, the acquisition of the Lower Filiorum property north of Abalone Cove may provide cactus wren easier access to the reserve through the habitat corridor linking Filiorum, Three Sisters, Portuguese Bend, Forrestal, and the Lower Filiorum Reserves.

Interestingly, there was an increase in cactus wren activity in the patch closest to the seed farm at Alta Vicente Reserve (Figure 1). Nesting was observed near the non-native cactus at the farm and cactus wren were sighted in non-native cactus habitat. We will monitor this area closely in future surveys, as the presence of cactus wren in the non-native cactus habitat may affect our restoration plans and any non-native cactus removal. PVPLC has access to the farm, which will enable closer monitoring of this area for cactus wren activity.

Certain reserves had multiple sightings of overtopped cactus and non-native mustard, which contribute to poor habitat suitability and may also help explain the absence of cactus wren in Portuguese Bend. The last nest spotted in Portuguese Bend was in 2020. In 2021, cactus wren were rare in two patches; in 2022, no cactus wren were spotted.

Several causes of cactus wren decline have been identified as potential and likely drivers of declining regional presence and nesting success of cactus wren. These include: invasion by non-native plant species, heightened predation pressure in urban areas, unfavorable weather conditions (drought, seasonal shifts in rainfall, and cool early spring temperatures), and human disturbance. This program has



found evidence to support each of these factors as present in the Preserve. It is expected that these issues are working synergistically creating a complex set of overlapping challenges.

Although 2021 and 2022 saw a slight increase in breeding activity and observations, these challenges still exist and management efforts will still be necessary to ensure the validity of the CACW in the Palos Verdes Peninsula. Since 2019 the conservancy worked on opening up the vegetation around core habitat areas and previously inhabited patches to enhance the existing core populations and avoid a further decline in population.

To meet or mitigate challenges faced by cactus wren in the preserve, conservancy staff has determined several management activities to improve the viability of the Palos Verdes cactus wren population.

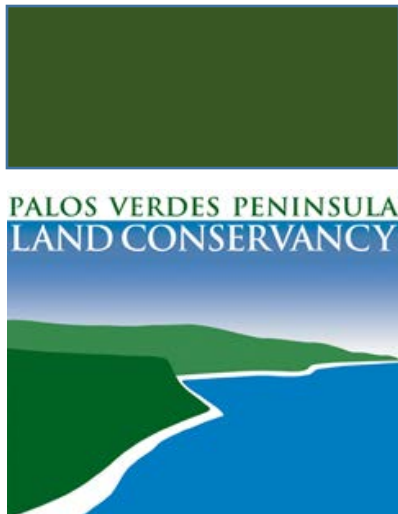
Recommended activities include:

- Continued removal of invasive non-native plants from cactus rich areas
- Continued installation of new cactus plantings
- Continued creation of foraging habitat (bare ground) surrounding cactus patches
- Possible implementation of nesting boxes
- Transplanting adult CACW individuals and swapping eggs from nearby CACW populations for genetic longevity purposes

## LITERATURE CITED

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# Wildlife Tracking Community Science Monitoring 2022-2023



## INTRODUCTION

Top predators are an important ecological component of natural ecosystems. In the Palos Verdes Nature Preserve, Coyotes are apex predators, where they control the population of several food web members. The regulation of intermediate predators is important to maintaining healthy populations of other wildlife species including protected songbirds such as the California gnatcatcher (*Polioptila californica californica* [FTJ]) and Cactus Wren (*Campylorhynchus brunneicapillus*). The Rancho Palos Verdes Natural Communities Conservation Plan describes the need for collecting new biological data on wildlife movements and the importance of monitoring predator presence within the reserve.

The Community Science Wildlife Tracking program is a monitoring project that surveys the Preserve for the presence of coyotes and other species. Volunteer participants walk trail segments in search of tracks or scat which are mapped and photographed. Results of this survey are compiled to create maps of areas used by coyotes and foxes within each reserve. Mapped observations of tracks and scat work to describe locations of high and low coyote and fox activity.

The Wildlife Camera project was designed to complement the Community Science Wildlife Tracking Program and further investigate findings of the Tracking Program such as areas of exclusion or territorial boundaries. A sample of results from October to November 2022 are presented Section II and Appendix B of this report.



## Section I: Wildlife Tracking Program

### METHODS

#### Study Area:

The study area was within 12 reserves (Abalone Cove, Agua Amarga, Alta Vicente, Filiorum, Forrestal, Malaga Canyon, Ocean Trails, Portuguese Bend, San Ramon, Three Sisters, Vicente Bluffs, and Vista Del Norte) of the Palos Verdes Nature Preserve (PVNP) located in the cities of Rancho Palos Verdes and bordering Rolling Hills, CA. Three reserves outside of the PVNP were also surveyed.



**Figure 1. Wildlife Tracking Study Area Map**

#### Data Collection:

The monitoring is conducted when the animals are most active, November through March (the results in the report summarize data from November 2022 to January 2023 due to the annual report documentation timing) by walking along specific trail routes in the preserves. While walking along marked trails, surveyors search for evidence of coyotes, gray fox, and red fox which is usually in the form of scat or track imprints. This year the Land Conservancy started tracking all species observed. Scat is the most frequent observation made, with tracks a distant second. When tracks are found, the length and width of the track is observed and a ruler or other size reference is placed in the photo of the track or scat.

Training is required for participants to develop the necessary skills for optimal accuracy in identifying scat and tracks. At minimum, initial training requires at least two 3 hour sessions, which are conducted on Saturdays in October. Additionally Community Science participants are encouraged to accompany advanced trackers to enhance their skills. Photographs of observations are an important tool for confirming the accuracy of observations. The Conservancy provides additional support as needed to the wildlife tracking volunteers. Training included two field training days where the principles of tracking were taught. Follow up training in small groups in the field were also offered to create confidence in the volunteers and in the tracking observations.

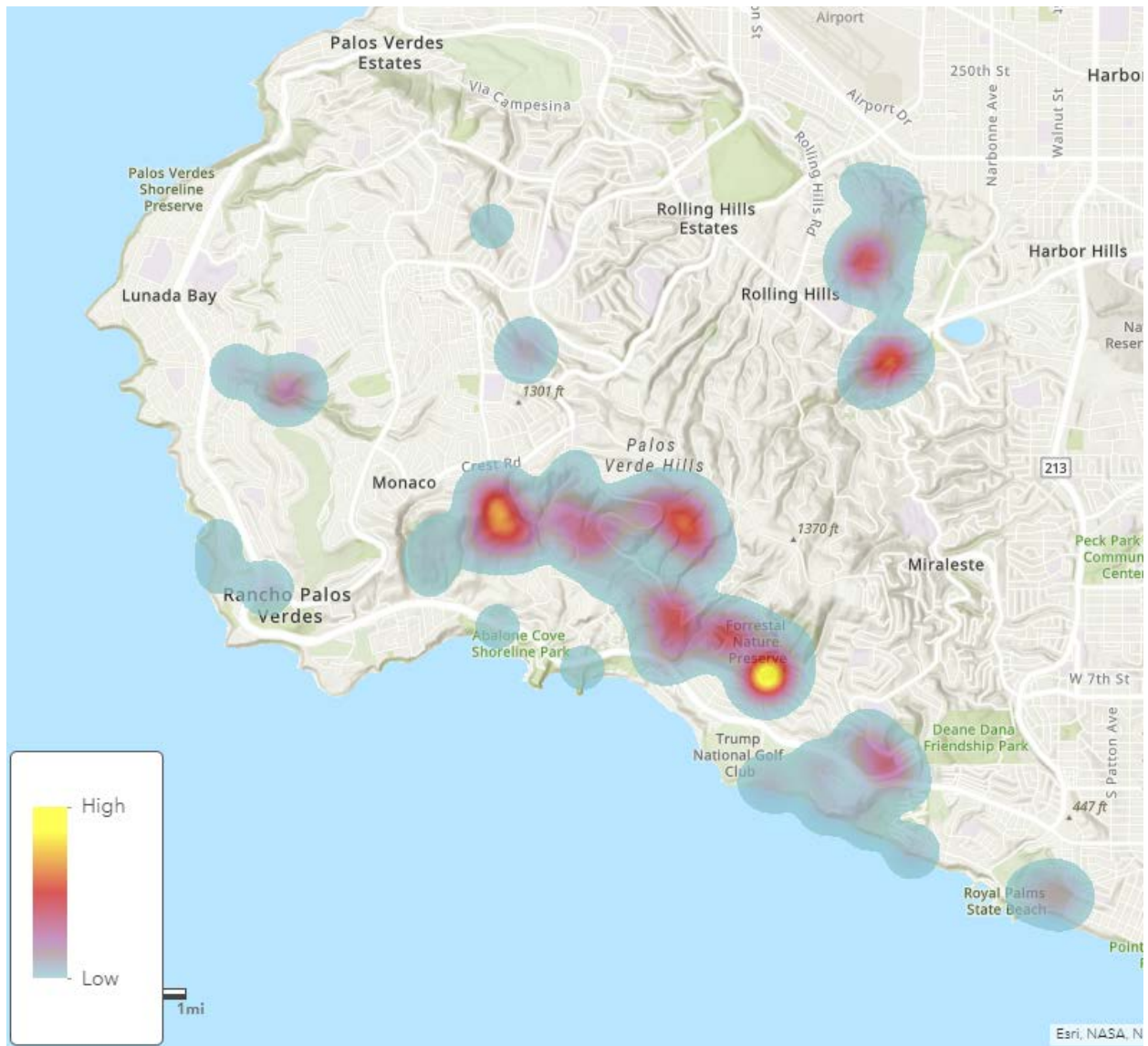
Recorded data are submitted electronically to the Conservancy using a GIS-based mobile app called Survey123. This app streamlines the data collection and submission process by allowing all volunteers to save observations on their phones, including photos, notes, and geolocation. This data is then downloaded into an Excel sheet and analyzed. The points recorded at each observation are downloaded as a shapefile and mapped and analyzed using ArcGIS Pro.

As volunteers record observations throughout the season, they were able to write in the notes of the survey their confidence in the species, if necessary. The Land Conservancy Biologist was able to confirm or contest each observation, and ultimately update the observation data if necessary.

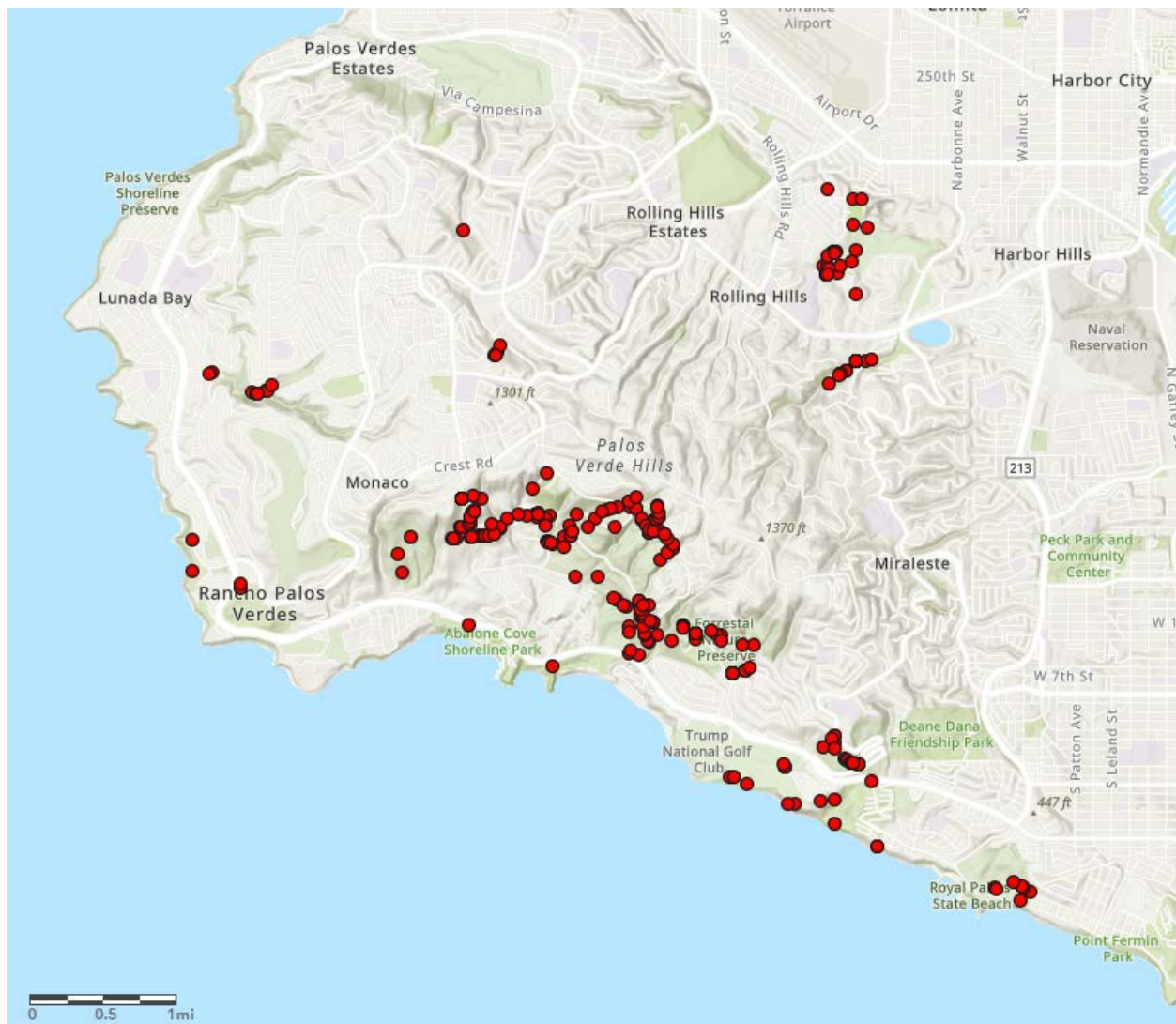
## RESULTS

**Table 1.** Number and rate of observations per reserve from November 2022 through January 2023.

Reserve	Survey Days	Total Observations	Coyote Observations	Rate of Coyote Observations	Fox Sp. Observations	Rate of Fox Sp. Observations
Abalone Cove	28	24	2	0.08	10	0.42
Agua Amarga	22	22	11	0.50	1	0.05
Alta Vicente	13	6	2	0.33	1	0.17
Chandler	29	29	25	0.86	1	0.03
Filiorum	89	88	57	0.65	7	0.08
Forrestal	131	131	54	0.41	23	0.18
George F Canyon	38	38	23	0.61	4	0.11
Malaga Canyon	11	8	1	0.13	2	0.25
Ocean Trails	18	17	14	0.82	3	0.18
Portuguese Bend	168	165	87	0.53	20	0.12
San Ramon	48	43	17	0.40	7	0.16
Three Sisters	3	3	3	1.00	0	0.00
Vicente Bluffs	6	5	2	0.40	1	0.20
Vista Del Norte	7	6	4	0.67	0	0.00
White Point	14	14	7	0.50	2	0.14
<b>Total</b>	<b>626</b>	<b>599</b>	<b>309</b>	<b>0.52</b>	<b>82</b>	<b>0.14</b>

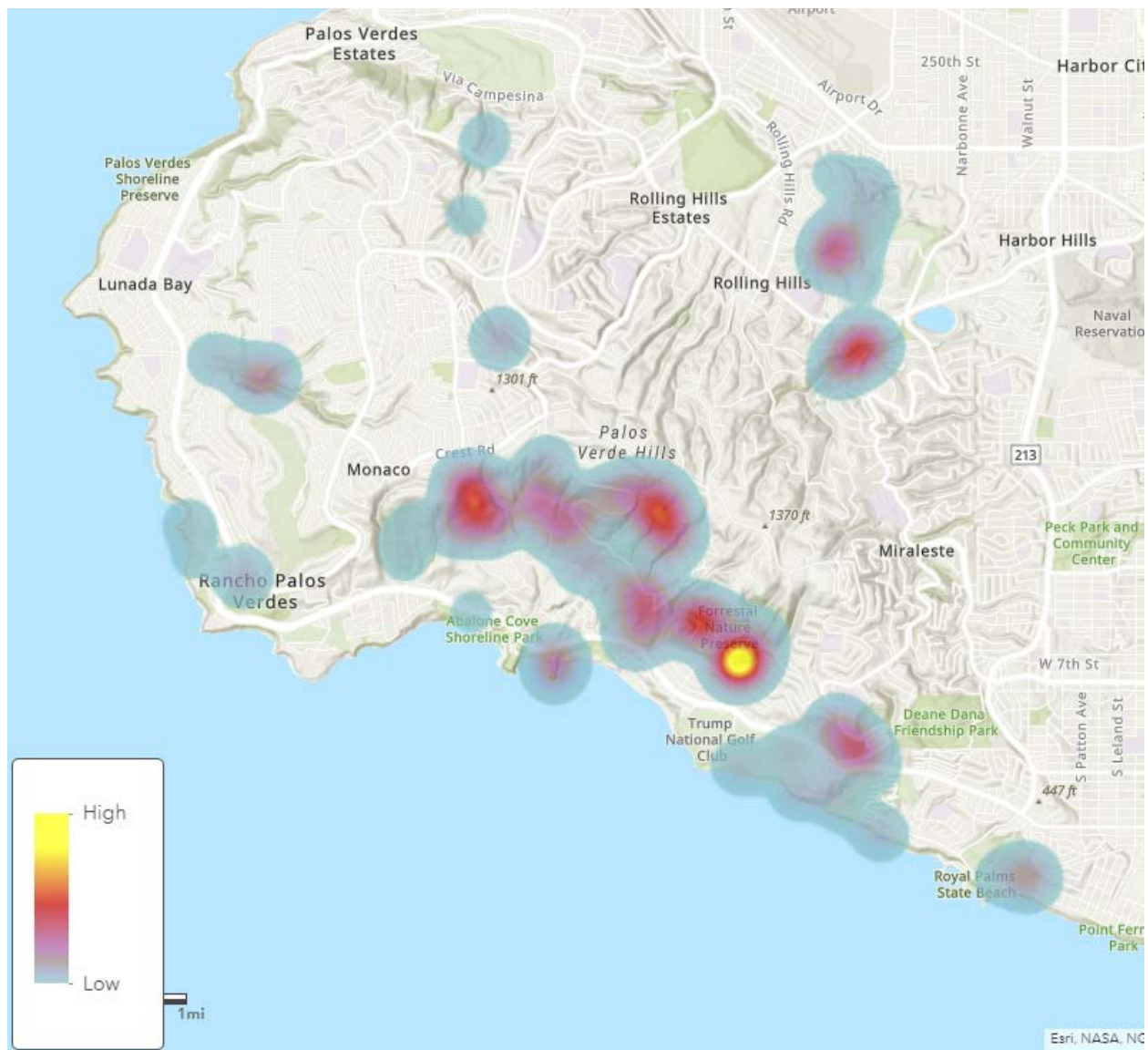


**Figure 2.** Coyote Observations Heat Map (Nov 2022 – Jan 2023)

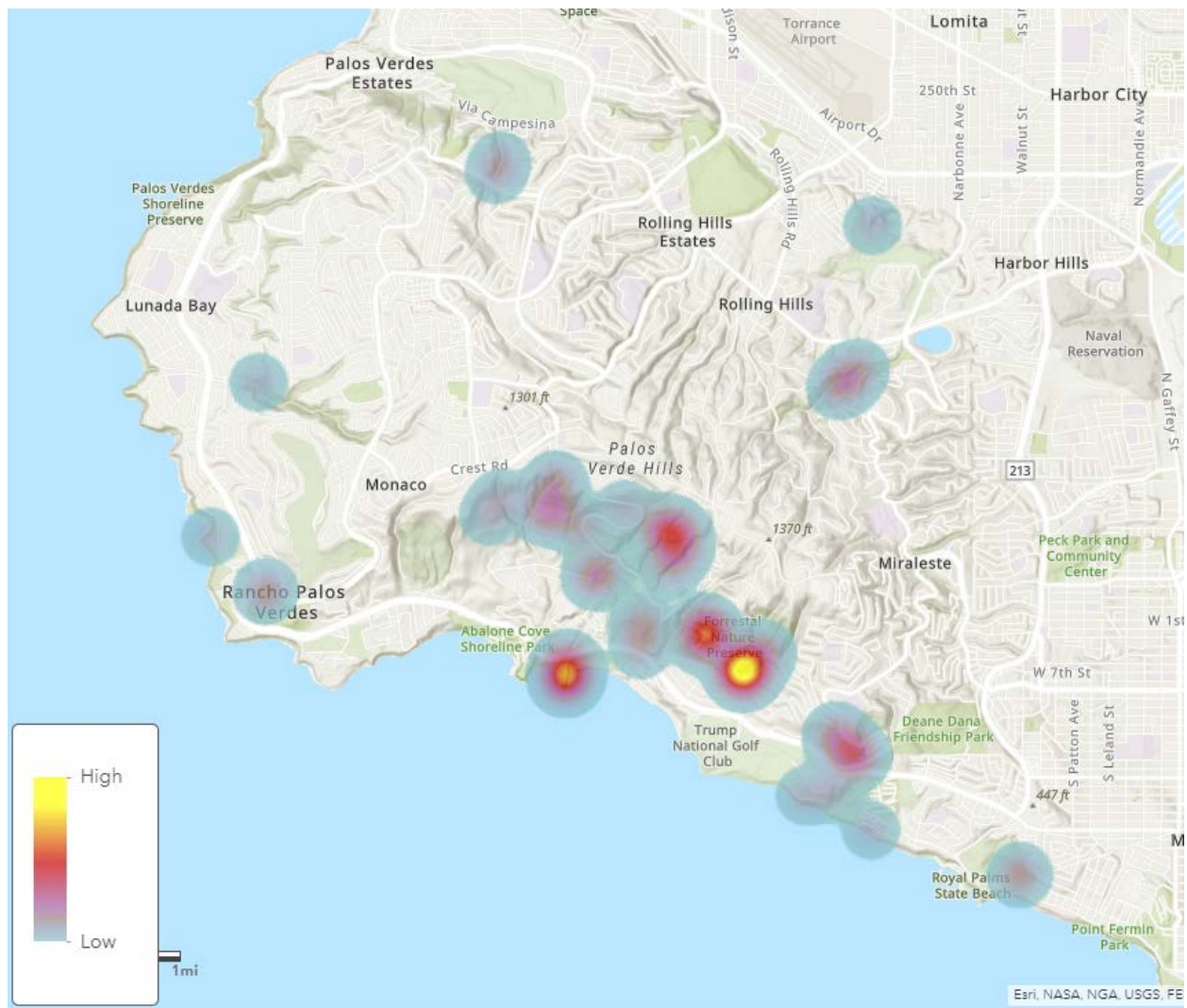


**Figure 3.** Coyote Observations Point Map (Nov 2022 – Jan 2023)





**Figure 4.** Canid Species Observations Heat Map (Nov 2022 – Jan 2023)



**Figure 5.** Fox Species Observations Heat Map (Nov 2022 – Jan 2023)

The 2022-2023 wildlife tracking survey identified a total of 391 wild canid observations in the survey area as of January 2023. Coyote observations were the most common found with 309 scat and tracks being identified, while both species of Fox tracks and scat totaled 82. Coyote observations were found across all reserves studied. The maps above, Figures 2 and 3, show that the highest number and rate of coyote observations were in Portuguese Bend (87 observation; observation rate of 0.53), Filiorum (57 observations; observation rate of 0.65), Forrester (54 observations; observation rate of 0.41), and Chandler Reserves (25 observations; observation rate of 0.86). Table 1 and Figure 5 show us that, while much less frequent overall as compared to Coyotes, Fox species observations were most frequent in Forrester (23 observations; observations rate of 0.18), Abalone Cove (10 observations; observation rate of 0.42), San Ramon (7 observations; observation rate of 0.16) and Portuguese Bend Reserves (20 observations; observation rate of 0.12). Figure 4 shows the heat map of all Canid sp. (fox species observations as well as coyote) observations.

Appendix A shows the locations and distribution of all species observed throughout the program.

## DISCUSSION

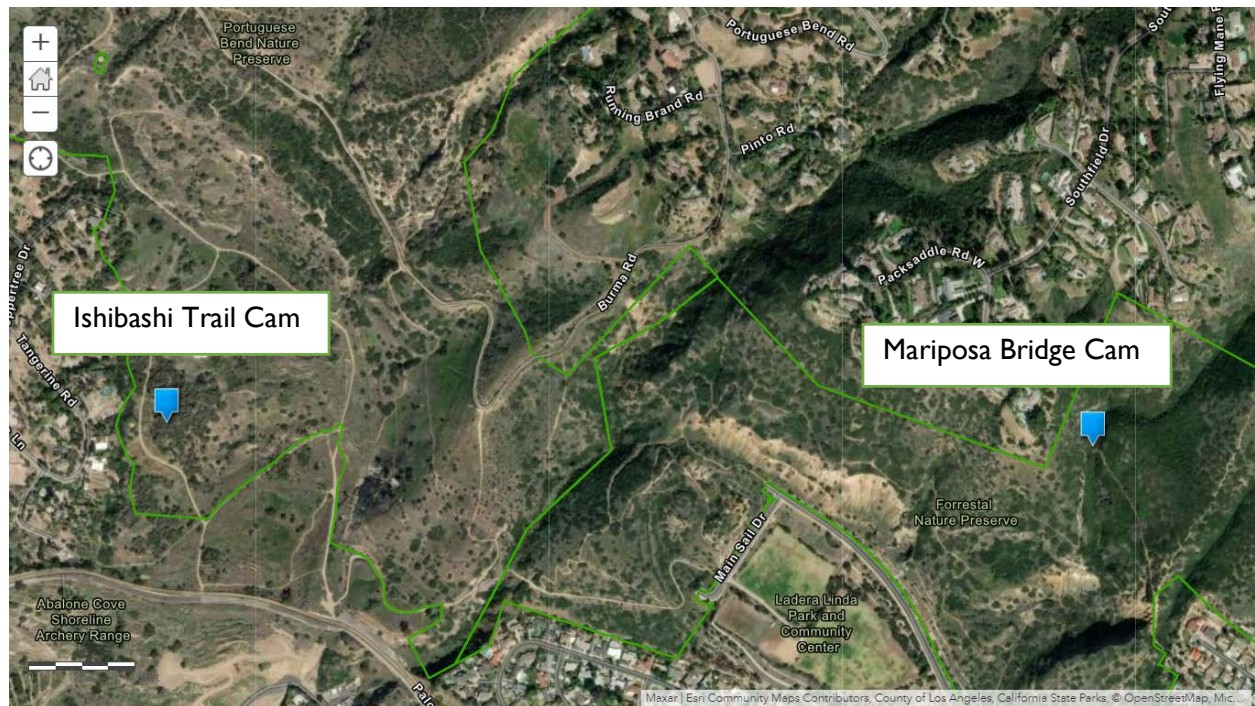
The presence of canid predators within wildlife habitats has been documented as crucial to ensuring healthy ecosystem function. In the Palos Verdes Nature Preserve the success of nesting songbirds, namely the federally protected California gnatcatcher (*Polioptila californica*) and state protected coastal cactus wren (*Campylorhynchus brunneicapillus*), can be positively influenced by the presence of predators through their control of lower predator (i.e.: striped skunk, raccoon, domestic cats, etc.) populations. The presence of coyotes is specifically indicated by the Rancho Palos Verdes Natural Community Conservation Plan as an important ecological element necessary for successful nesting conditions. Considering the presence of coyotes in these terms, the broad range of the coyote observed within the Palos Verdes Nature Preserve indicates the existence of an important meso-predator control dynamic.



## Section II: Wildlife Camera Program

### METHODS

From October through November 2022, the wildlife cameras were placed at two locations in Forrestal and Portuguese Bend Reserves of the Palos Verdes Nature Preserve (PVNP) (Figure 1). One camera was placed off the Ishibashi Trail in Portuguese Bend Reserve where Great Horned Owl activity has been documented in previous years. The second camera was placed off Mariposa Trail behind the bridge in Forrestal Reserve where water was once present. Each year, five wildlife cameras are deployed in various locations, and are moved to different locations periodically throughout the year. Cameras are typically secured to trees and locked for safety (Figure 2). Wildlife tracking results often inform camera location selection. Cameras activate when movement is observed to capture wildlife (Figure 3). Data is regularly downloaded from the camera memory cards and analyzed by community scientists. Data is input into spreadsheets detailing the date, time, species, and activity seen in the videos (Appendix B).



**Figure 1.** Wildlife Trail Camera Locations – Portuguese Bend Reserve and Forrestal Reserve





**Figure 2:** Wildlife camera secured to tree



**Figure 3:** Coyote still from wildlife camera

## RESULTS

The following results provide a snapshot of the data recorded by these two cameras. The quantity of data is too large to include in the report, so we selected two of our cameras' data during a two-month period of time to detail here (Table 1). Additional data can be provided upon request. Full datasheets from each camera can be found in Appendix B of this report.

**Table 1.** Number of species observed by two trail cameras October 2022 through November 2022

Species	Number of Sightings	
	Ishibashi Trail Cam	Mariposa Bridge Cam
Coyote	40	4
Striped Skunk	7	2
Audubon Cottontail	82	1
Northern Flicker	2	1
Great Horned Owl	2	1
Common Raccoon	1	23
Wood Rat	1	110
House Wren		7

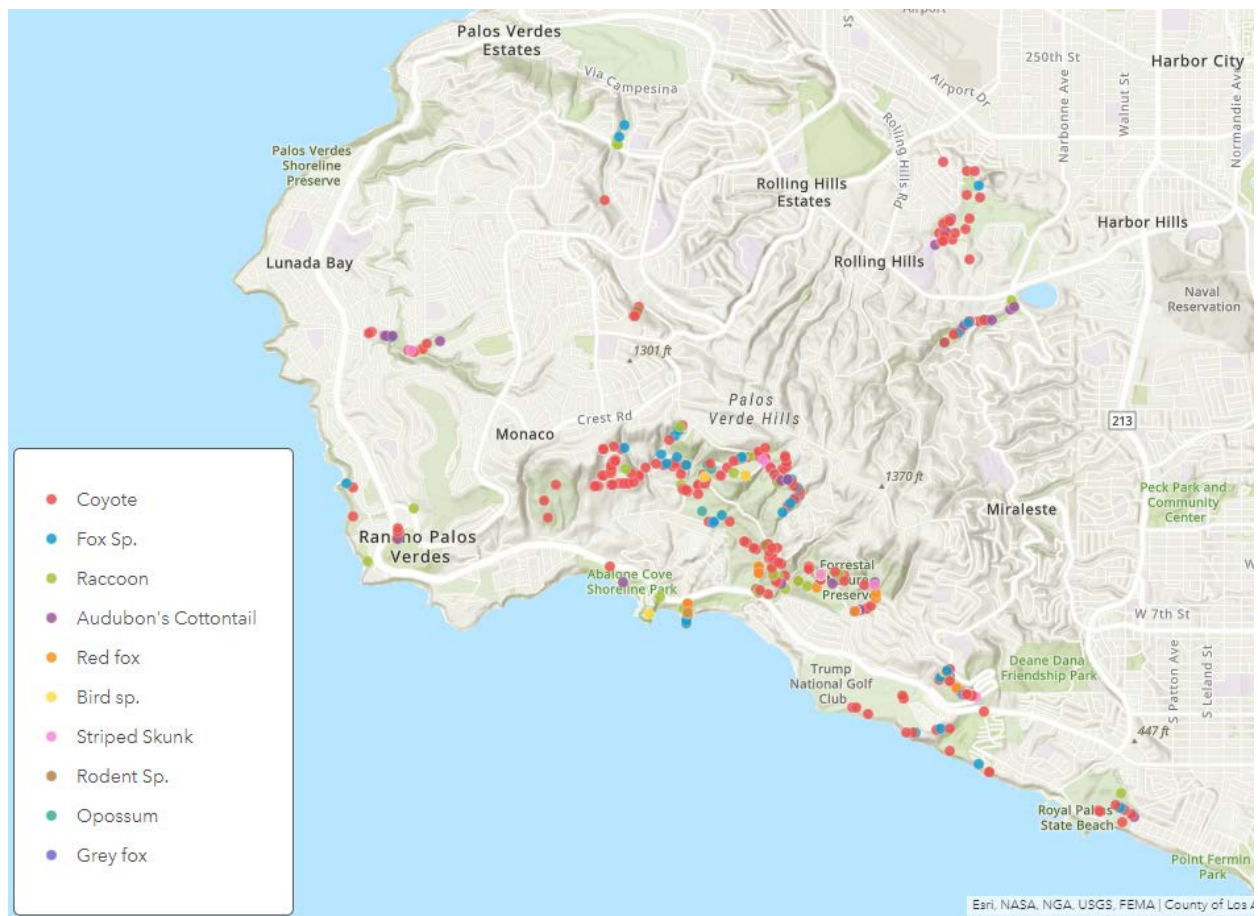
Notably, the Ishibashi camera contains several coyote clips with a pair together and what appears to be a solo transient coyote with a darker coat. The pair is seen carefully scent marking. The Forrestal camera captured one different pair. There were 40 glimpses of coyote on the Portuguese Bend Ishibashi camera, compared to only 4 captures on the Forrestal Mariposa Bridge camera. Both cameras captured various primarily nocturnal mammals including raccoons, wood rats, and skunks. In addition, both locations were visited by bird species including Northern Flickers, House Wren, and Great Horned Owls.

## DISCUSSION

Cameras are placed away from trails where public cannot access, including wildlife tracking volunteers, so the wildlife can be viewed relatively undisturbed by humans. Therefore, wildlife cameras provide valuable insight into mammal activity at the PVNP that otherwise would not be possible to observe, especially during the nighttime. The Mariposa bridge location has experienced a decline in wildlife activity, namely canid species, likely due to drying up of the creek that once flowed beneath the bridge. The Ishibashi trail location saw a significant amount of coyote activity, including at least one male-female pair traveling through regularly. The male has a noticeable white tip on his tail, indicating that he started life in Forrestal where that characteristic has appeared previously. The cameras will be moved to new locations in 2023. Locations where water is present, canid activity has been observed, and/or restoration areas are nearby will be prioritized.

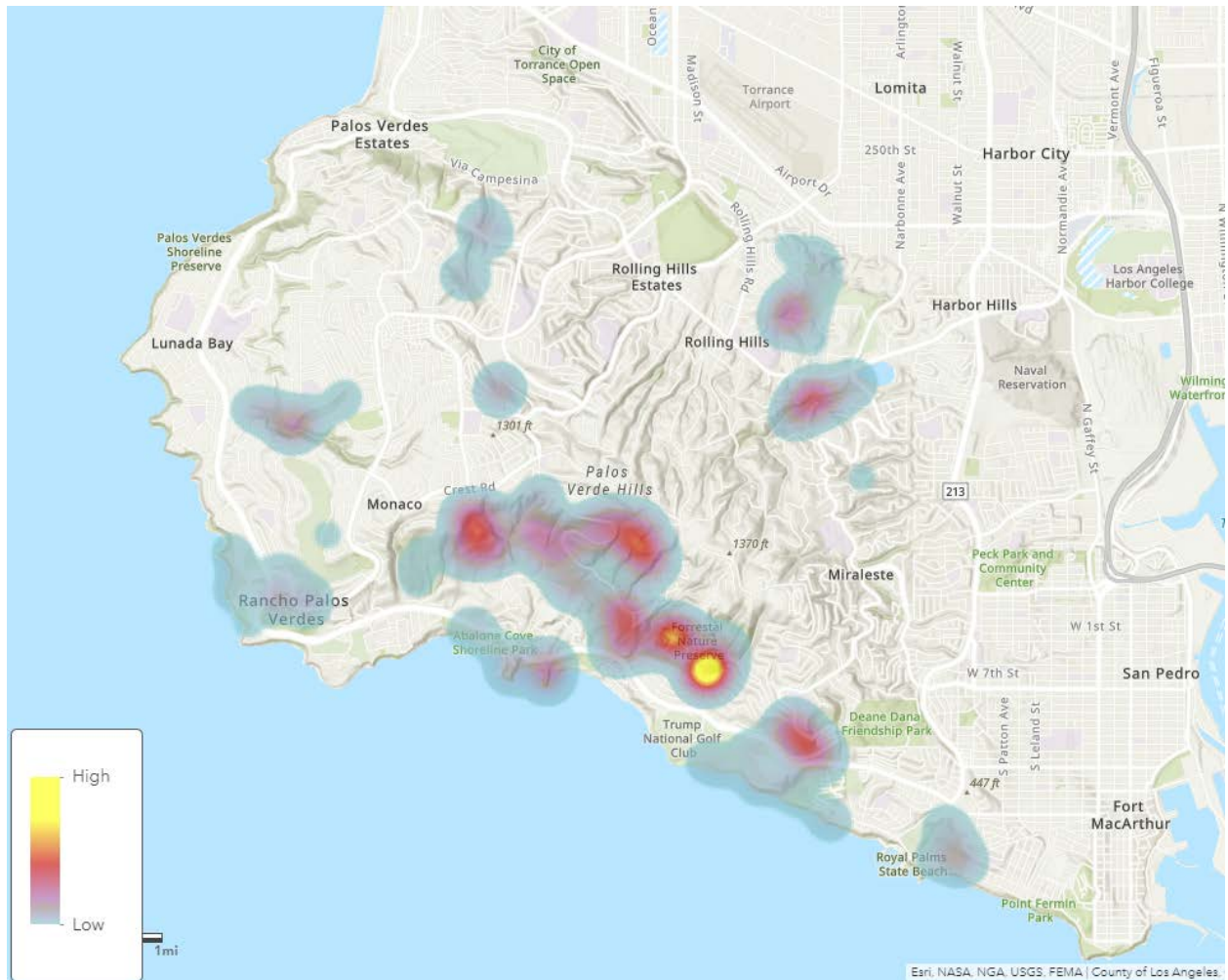
# **Appendix A**

## **All Species Maps**



**Appendix A-I. All Species Observations Point Map (Nov 2022 – Jan 2023)**





**Appendix A-2. All Species Observations Heat Map (Nov 2022 – Jan 2023)**

# **Appendix B**

## **Wildlife Camera Data Sheets**

## Ishibashi Trail Camera

DATE	TIME	SPECIES NAME	COMMENT	LAT/LONG
10/23/2022	02:20am	Striped Skunk - Mephitis mephitis	#0013	33.742991,-118.362862
	07:44am	Coyote - Canis latrans	#0014	33.742991,-118.362862
	07:44am	Coyote - Canis latrans	#0015	33.742991,-118.362862
10/24/2022	06:18pm	Audubon Cottontail - Sylvilagus audubonii	#0017 Grazing	33.742991,-118.362862
	06:19pm	Audubon Cottontail - Sylvilagus audubonii	#0018	33.742991,-118.362862
	06:20pm	Audubon Cottontail - Sylvilagus audubonii	#0019	33.742991,-118.362862
	06:36pm	Audubon Cottontail - Sylvilagus audubonii	#0020	33.742991,-118.362862
	06:38pm	Audubon Cottontail - Sylvilagus audubonii	#0021	33.742991,-118.362862
	06:39pm	Audubon Cottontail - Sylvilagus audubonii	#0022	33.742991,-118.362862
10/25/2022	05:23am	Striped Skunk - Mephitis mephitis	#0023	33.742991,-118.362862
	07:30am	Audubon Cottontail - Sylvilagus audubonii	#0024	33.742991,-118.362862
	02:07pm	Northern Flicker - Colaptes auratus	#0026 Probing soil with bill	33.742991,-118.362862
	06:10pm	Audubon Cottontail - Sylvilagus audubonii	#0027	33.742991,-118.362862
	06:11pm	Audubon Cottontail - Sylvilagus audubonii	#0028	33.742991,-118.362862
	06:12pm	Audubon Cottontail - Sylvilagus audubonii	#0029	33.742991,-118.362862
	06:13pm	Audubon Cottontail - Sylvilagus audubonii	#0030	33.742991,-118.362862
10/26/2022	06:18pm	Audubon Cottontail - Sylvilagus audubonii	#0032	33.742991,-118.362862
	06:19pm	Audubon Cottontail - Sylvilagus audubonii	#0033	33.742991,-118.362862
	06:26pm	Audubon Cottontail - Sylvilagus audubonii	#0034	33.742991,-118.362862
	06:27pm	Audubon Cottontail - Sylvilagus audubonii	#0035	33.742991,-118.362862
	06:28pm	Audubon Cottontail - Sylvilagus audubonii	#0036	33.742991,-118.362862
	06:37pm	Audubon Cottontail - Sylvilagus audubonii	#0037	33.742991,-118.362862
10/27/2022	06:44pm	Coyote - Canis latrans	#0038	33.742991,-118.362862
	06:44pm	Coyote - Canis latrans	#0039	33.742991,-118.362862
	11:32pm	Coyote - Canis latrans	#0040	33.742991,-118.362862
10/28/2022	01:28am	Audubon Cottontail - Sylvilagus audubonii	#0041	33.742991,-118.362862
	01:28am	Audubon Cottontail - Sylvilagus audubonii	#0042	33.742991,-118.362862
	04:57am	Striped Skunk - Mephitis mephitis	#0043	33.742991,-118.362862
	04:58am	Striped Skunk - Mephitis mephitis	#0044	33.742991,-118.362862
10/29/2022	06:16pm	Audubon Cottontail - Sylvilagus audubonii	#0047	33.742991,-118.362862
	06:17pm	Audubon Cottontail - Sylvilagus audubonii	#0048	33.742991,-118.362862
	07:43pm	Audubon Cottontail - Sylvilagus audubonii & Bat	#0049	33.742991,-118.362862
	08:07pm	Common Raccoon - Procyon lotor	#0051	33.742991,-118.362862
10/30/2022	01:03am	Audubon Cottontail - Sylvilagus audubonii	#0052	33.742991,-118.362862
	01:24am	Audubon Cottontail - Sylvilagus audubonii	#0054	33.742991,-118.362862
	01:24am	Audubon Cottontail - Sylvilagus audubonii	#0055	33.742991,-118.362862
10/31/2022	06:21am	Audubons Cottontail - Sylvilagus audubonii	#0009 Grazing Bat flies across - Myotis?	33.742991,-118.362862
	07:58am	Coyote - Canis latrans	#0011 Pair.Scent marking.	33.742991,-118.362862
11/01/2022	12:40am	Striped Skunk - Mephitis mephitis	#0014	33.742991,-118.362862
	12:40am	Striped Skunk - Mephitis mephitis	#0015	33.742991,-118.362862
	08:33pm	Audubons Cottontail - Sylvilagus audubonii	#0017 Run fast off frame.	33.742991,-118.362862
	08:35pm	Audubons Cottontail - Sylvilagus audubonii	#0018 Walk across.	33.742991,-118.362862
	09:37pm	Audubons Cottontail - Sylvilagus audubonii	#0019 Grazing.	33.742991,-118.362862
11/03/2022	05:48pm	Coyote - Canis latrans	#0035 Female, smaller and darker, lop ear.	33.742991,-118.362862
	11:40pm	Audubons Cottontail - Sylvilagus audubonii	#0036 Alert, then run away.	33.742991,-118.362862
11/04/2022	03:25pm	Coyote - Canis latrans	#0038 Pair. Scent marking.	33.742991,-118.362862
	03:25pm	Coyote - Canis latrans	#0039	33.742991,-118.362862
	06:57pm	Audubons Cottontail - Sylvilagus audubonii	#0040 Two rabbits grazing	33.742991,-118.362862
	07:05pm	Audubons Cottontail - Sylvilagus audubonii	#0041	33.742991,-118.362862
	07:11pm	Audubons Cottontail - Sylvilagus audubonii	#0042	33.742991,-118.362862
	07:13pm	Audubons Cottontail - Sylvilagus audubonii	#0043	33.742991,-118.362862
	07:30pm	Audubons Cottontail - Sylvilagus audubonii	#0044	33.742991,-118.362862
	07:59pm	Coyote - Canis latrans	#0045	33.742991,-118.362862
	07:59pm	Coyote - Canis latrans	#0046	33.742991,-118.362862
	08:05pm	Coyote - Canis latrans	#0047 Close up.	33.742991,-118.362862
	08:10pm	Coyote - Canis latrans	#0048 Trot past.	33.742991,-118.362862
11/05/2022	05:13am	Audubons Cottontail - Sylvilagus audubonii	#0049	33.742991,-118.362862
	06:10am	Audubons Cottontail - Sylvilagus audubonii	#0051 High alert.	33.742991,-118.362862
	06:43pm	Audubons Cottontail - Sylvilagus audubonii	#0052	33.742991,-118.362862
	08:15pm	Audubons Cottontail - Sylvilagus audubonii	#0053	33.742991,-118.362862
	11:03pm	Audubons Cottontail - Sylvilagus audubonii	#0054	33.742991,-118.362862
	11:04pm	Audubons Cottontail - Sylvilagus audubonii	#0055	33.742991,-118.362862
	11:05pm	Audubons Cottontail - Sylvilagus audubonii	#0056	33.742991,-118.362862
	11:07pm	Audubons Cottontail - Sylvilagus audubonii	#0057	33.742991,-118.362862
	11:08pm	Audubons Cottontail - Sylvilagus audubonii	#0058	33.742991,-118.362862
11/6/2022	02:46am	Audubons Cottontail - Sylvilagus audubonii	#0059 Two grazing.	33.742991,-118.362862
	02:47am	Audubons Cottontail - Sylvilagus audubonii	#0060 Two grazing	33.742991,-118.362862
	02:48am	Audubons Cottontail - Sylvilagus audubonii	#0061 Two grazing	33.742991,-118.362862
	02:48am	Audubons Cottontail - Sylvilagus audubonii	#0062 Two grazing	33.742991,-118.362862
	02:54am	Audubons Cottontail - Sylvilagus audubonii	#0063	33.742991,-118.362862
	02:56am	Audubons Cottontail - Sylvilagus audubonii	#0064	33.742991,-118.362862
	03:39am	Audubons Cottontail - Sylvilagus audubonii	#0065	33.742991,-118.362862
	03:45am	Audubons Cottontail - Sylvilagus audubonii	#0066 Two graze, approach, chase.	33.742991,-118.362862
	08:07am	Coyote - Canis latrans	#0067	33.742991,-118.362862





Forrestal Mariposa Bridge Camera				
DATE	TIME	SPECIES NAME	COMMENT	LAT/LONG
9/29/2022	11:44pm	Common Raccoon - Procyon lotor	#0014 Two CR's	33.742707,-118.345511
9/30/2022	02:31am	Wood Rat - Neotoma macrotis	#0015	33.742707,-118.345511
	05:17am	Wood Rat - Neotoma macrotis	#0016	33.742707,-118.345511
	05:22am	Wood Rat - Neotoma macrotis	#0017	33.742707,-118.345511
	05:29am	Wood Rat - Neotoma macrotis	#0018	33.742707,-118.345511
	07:08pm	Wood Rat - Neotoma macrotis	#0019	33.742707,-118.345511
10/1/2022	04:27am	Wood Rat - Neotoma macrotis	#0026	33.742707,-118.345511
	08:28pm	Wood Rat - Neotoma macrotis	#0027	33.742707,-118.345511
	08:56pm	Wood Rat - Neotoma macrotis	#0028	33.742707,-118.345511
	09:01pm	Wood Rat - Neotoma macrotis	#0030	33.742707,-118.345511
	09:03pm	Wood Rat - Neotoma macrotis	#0031 Two WR's chase cross canyon	33.742707,-118.345511
	09:19pm	Wood Rat - Neotoma macrotis	#0032	33.742707,-118.345511
	10:58pm	Coyote - Canis latrans	#0034	33.742707,-118.345511
10/2/2022	02:30am	Wood Rat - Neotoma macrotis	#0039	33.742707,-118.345511
	02:39am	Striped Skunk - Mephitis mephitis	#0042	33.742707,-118.345511
	03:47am	Wood Rat - Neotoma macrotis	#0043	33.742707,-118.345511
10/3/2023	12:24am	Wood Rat - Neotoma macrotis	#0044	33.742707,-118.345511
	12:25am	Wood Rat - Neotoma macrotis	#0045	33.742707,-118.345511
	01:08am	Wood Rat - Neotoma macrotis	#0046	33.742707,-118.345511
	01:10am	Wood Rat - Neotoma macrotis	#0047	33.742707,-118.345511
	03:52am	Wood Rat - Neotoma macrotis	#0048	33.742707,-118.345511
	04:14am	Wood Rat - Neotoma macrotis	#0050	33.742707,-118.345511
10/04/2022	10:36pm	Wood Rat - Neotoma macrotis	#0003	33.742707,-118.345511
	10:58pm	Wood Rat - Neotoma macrotis	#0004	33.742707,-118.345511
	10:59pm	Wood Rat - Neotoma macrotis	#0005	33.742707,-118.345511
	11:05pm	Wood Rat - Neotoma macrotis	#0006	33.742707,-118.345511
	11:12pm	Wood Rat - Neotoma macrotis	#0007	33.742707,-118.345511
	11:13pm	Wood Rat - Neotoma macrotis	#0008	33.742707,-118.345511
10/05/2022	12:07am	Wood Rat - Neotoma macrotis	#0009	33.742707,-118.345511
	04:25am	Wood Rat - Neotoma macrotis	#0010	33.742707,-118.345511
	05:02am	Wood Rat - Neotoma macrotis	#0012	33.742707,-118.345511
	05:12am	Wood Rat - Neotoma macrotis	#0013 Carry large leaf uo tree	33.742707,-118.345511
10/06/2022	01:14am	Wood Rat - Neotoma macrotis	#0016	33.742707,-118.345511
	01:15am	Wood Rat - Neotoma macrotis	#0017 Two WR;s chase	33.742707,-118.345511
	02:46am	Wood Rat - Neotoma macrotis	#0018	33.742707,-118.345511
	03:17am	Wood Rat - Neotoma macrotis	#0019	33.742707,-118.345511
	03:36am	Wood Rat - Neotoma macrotis	#0020 On tree sniffing the air	33.742707,-118.345511
	04:53am	Wood Rat - Neotoma macrotis	#0021 Down tree, cross canyon, nibble	33.742707,-118.345511
	08:12pm	Wood Rat - Neotoma macrotis	#0022	33.742707,-118.345511
	09:23pm	Wood Rat - Neotoma macrotis	#0023	33.742707,-118.345511
	09:59pm	Wood Rat - Neotoma macrotis	#0024	33.742707,-118.345511
	10:09pm	Wood Rat - Neotoma macrotis	#0025	33.742707,-118.345511
	11:03pm	Wood Rat - Neotoma macrotis	#0026	33.742707,-118.345511
10/7/2022	09:10pm	Wood Rat - Neotoma macrotis	#0029	33.742707,-118.345511
	10:34pm	Wood Rat - Neotoma macrotis	#0030 Carries something, digs	33.742707,-118.345511
	10:35pm	Wood Rat - Neotoma macrotis	#0031	33.742707,-118.345511
10/8/2022	12:55am	Wood Rat - Neotoma macrotis	#0032	33.742707,-118.345511
	01:44am	Wood Rat - Neotoma macrotis	#0034	33.742707,-118.345511
	03:53am	Wood Rat - Neotoma macrotis	#0035	33.742707,-118.345511
	03:55am	Wood Rat - Neotoma macrotis	#0036	33.742707,-118.345511
	07:04pm	Unidentified small flying insect	#0037	33.742707,-118.345511
	07:29pm	Common Raccoon - Procyon lotor	#0038 Shuffles feet	33.742707,-118.345511
	07:29pm	Common Raccoon - Procyon lotor	#0039 Walk down canyon	33.742707,-118.345511
	07:33pm	Common Raccoon - Procyon lotor	#0040 2nd Raccoon walks down canyon	33.742707,-118.345511
	11:26pm	Wood Rat - Neotoma macrotis	#0041 Very fast run up canyon	33.742707,-118.345511
10/9/2022	09:12pm	Wood Rat - Neotoma macrotis	#0044	33.742707,-118.345511
	09:13pm	Wood Rat - Neotoma macrotis	#0045	33.742707,-118.345511
	09:13pm	Wood Rat - Neotoma macrotis	#0046	33.742707,-118.345511
	09:25pm	Wood Rat - Neotoma macrotis	#0047	33.742707,-118.345511
	09:26pm	Wood Rat - Neotoma macrotis	#0048	33.742707,-118.345511
	09:27pm	Wood Rat - Neotoma macrotis	#0049	33.742707,-118.345511
	09:27pm	Wood Rat - Neotoma macrotis	#0050	33.742707,-118.345511
10/10/2022	01:53am	Wood Rat - Neotoma macrotis	#0051	33.742707,-118.345511
	07:01pm	Wood Rat - Neotoma macrotis	#0052	33.742707,-118.345511
10/28/2022	07:20pm	Wood Rat - Neotoma macrotis	#0005	33.742707,-118.345511
10/29/2022	07:39pm	Wood Rat - Neotoma macrotis	#0006	33.742707,-118.345511
	07:43pm	Wood Rat - Neotoma macrotis	#0007	33.742707,-118.345511
	10:09pm	Wood Rat - Neotoma macrotis	#0008	33.742707,-118.345511
	11:25pm	Wood Rat - Neotoma macrotis	#0009	33.742707,-118.345511
	11:43pm	Wood Rat - Neotoma macrotis	#0010	33.742707,-118.345511
10/30/2022	12:51am	Wood Rat - Neotoma macrotis	#0011 Fast-climb tree	33.742707,-118.345511

DATE	TIME	SPECIES NAME	COMMENT	LAT/LONG
	12:51am	Wood Rat - <i>Neotoma macrotis</i>	#0012	33.742707,-118.345511
	02:33am	Wood Rat - <i>Neotoma macrotis</i>	#0014	33.742707,-118.345511
	06:37pm	Wood Rat - <i>Neotoma macrotis</i>	#0015	33.742707,-118.345511
	07:44pm	Wood Rat - <i>Neotoma macrotis</i>	#0017	33.742707,-118.345511
10/31/2022	12:41am	Wood Rat - <i>Neotoma macrotis</i>	#0018	33.742707,-118.345511
	11:28pm	Wood Rat - <i>Neotoma macrotis</i>	#0020	33.742707,-118.345511
	11:31pm	Wood Rat - <i>Neotoma macrotis</i>	#0021	33.742707,-118.345511
	11:40pm	Wood Rat - <i>Neotoma macrotis</i>	#0022	33.742707,-118.345511
	11:47pm	Wood Rat - <i>Neotoma macrotis</i>	#0023	33.742707,-118.345511
11/1/2022	01:02am	Common Raccoon - <i>Procyon lotor</i>	#0025 Shuffle feet,walk up canyon	33.742707,-118.345511
	01:06am	Common Raccoon - <i>Procyon lotor</i>	#0026 Walk back down canyon	33.742707,-118.345511
	02:37am	Wood Rat - <i>Neotoma macrotis</i>	#0027	33.742707,-118.345511
	07:09pm	Wood Rat - <i>Neotoma macrotis</i>	#0029	33.742707,-118.345511
11/3/2022	07:07pm	Wood Rat - <i>Neotoma macrotis</i>	#0034	33.742707,-118.345511
11/4/2022	04:01am	Wood Rat - <i>Neotoma macrotis</i>	#0036	33.742707,-118.345511
	07:08pm	Wood Rat - <i>Neotoma macrotis</i>	#0037	33.742707,-118.345511
	07:16pm	Wood Rat - <i>Neotoma macrotis</i>	#0038	33.742707,-118.345511
	08:17pm	Common Raccoon - <i>Procyon lotor</i>	#0039 Up canyon	33.742707,-118.345511
	08:18pm	Common Raccoon - <i>Procyon lotor</i>	#0040 2nd Raccoon follow up canyon	33.742707,-118.345511
11/5/2022	07:11pm	Wood Rat - <i>Neotoma macrotis</i>	#0043	33.742707,-118.345511
	07:16pm	Wood Rat - <i>Neotoma macrotis</i>	#0044	33.742707,-118.345511
	08:51pm	Wood Rat - <i>Neotoma macrotis</i>	#0045	33.742707,-118.345511
	09:21pm	Wood Rat - <i>Neotoma macrotis</i>	#0046	33.742707,-118.345511
11/6/2022	12:37am	Wood Rat - <i>Neotoma macrotis</i>	#0047	33.742707,-118.345511
	02:16am	Wood Rat - <i>Neotoma macrotis</i>	#0048 Climb tree	33.742707,-118.345511
	08:07pm	Wood Rat - <i>Neotoma macrotis</i>	#0050 On ground across canyon	33.742707,-118.345511
	10:32pm	Wood Rat - <i>Neotoma macrotis</i>	#0051 Run very fast across canyon	33.742707,-118.345511
11/9/2022	01:21am	Wood Rat - <i>Neotoma macrotis</i>	#0052	33.742707,-118.345511
	05:54am	Wood Rat - <i>Neotoma macrotis</i>	#0054	33.742707,-118.345511
	06:47pm	Wood Rat - <i>Neotoma macrotis</i>	#0056	33.742707,-118.345511
	10:14pm	Wood Rat - <i>Neotoma macrotis</i>	#0057 Foraging across canyon	33.742707,-118.345511
	10:14pm	Wood Rat - <i>Neotoma macrotis</i>	#0058 Foraging	33.742707,-118.345511
	10:15pm	Wood Rat - <i>Neotoma macrotis</i>	#0059 On tree	33.742707,-118.345511
11/10/2022	03:49am	Wood Rat - <i>Neotoma macrotis</i>	#0060	33.742707,-118.345511
	07:06pm	Wood Rat - <i>Neotoma macrotis</i>	#0061	33.742707,-118.345511
	09:30pm	Wood Rat - <i>Neotoma macrotis</i>	#0063	33.742707,-118.345511
11/11/2022	02:05am	Wood Rat - <i>Neotoma macrotis</i>	#0064	33.742707,-118.345511
	07:00am	House Wren - <i>Troglodytes aedon parkmanii</i>	#0065	33.742707,-118.345511
	06:03pm	House Wren - <i>Troglodytes aedon parkmanii</i>	#0066	33.742707,-118.345511
	06:07pm	House Wren - <i>Troglodytes aedon parkmanii</i>	#0067	33.742707,-118.345511
	07:04pm	Wood Rat - <i>Neotoma macrotis</i>	#0068	33.742707,-118.345511
	10:47pm	Wood Rat - <i>Neotoma macrotis</i>	#0069	33.742707,-118.345511
	11:22pm	Common Raccoon - <i>Procyon lotor</i>	#0070	33.742707,-118.345511
11/12/2022	07:03am	House Wren - <i>Troglodytes aedon parkmanii</i>	#0072	33.742707,-118.345511
	06:07pm	House Wren - <i>Troglodytes aedon parkmanii</i>	#0073	33.742707,-118.345511
	08:00pm	Wood Rat - <i>Neotoma macrotis</i>	#0074	33.742707,-118.345511
	08:02pm	Wood Rat - <i>Neotoma macrotis</i>	#0075	33.742707,-118.345511
	08:27pm	Wood Rat - <i>Neotoma macrotis</i>	#0076 Two WR's Chase!	33.742707,-118.345511
	08:28pm	Wood Rat - <i>Neotoma macrotis</i>	#0077 Two WR's Chase continues.	33.742707,-118.345511
	11:32pm	Wood Rat - <i>Neotoma macrotis</i>	#0079 Alone again.	33.742707,-118.345511
11/13/2022	01:56am	Wood Rat - <i>Neotoma macrotis</i>	#0080	33.742707,-118.345511
	04:37am	Wood Rat - <i>Neotoma macrotis</i>	#0081	33.742707,-118.345511
	05:06am	Common Raccoon - <i>Procyon lotor</i>	#0083	33.742707,-118.345511
	05:07am	Common Raccoon - <i>Procyon lotor</i>	#0084	33.742707,-118.345511
	05:38am	Common Raccoon - <i>Procyon lotor</i>	#0085 Two CR's follow up canyon	33.742707,-118.345511
	05:40am	Common Raccoon - <i>Procyon lotor</i>	#0086 Two CR's climb tree	33.742707,-118.345511
	05:40am	Common Raccoon - <i>Procyon lotor</i>	#0087 Down canyon	33.742707,-118.345511
	05:43am	Common Raccoon - <i>Procyon lotor</i>	#0088 Two CR's return, cross canyon	33.742707,-118.345511
	06:01am	Common Raccoon - <i>Procyon lotor</i>	#0089 One CR up tree	33.742707,-118.345511
	06:01am	Common Raccoon - <i>Procyon lotor</i>	#0090 Down tree & down canyon	33.742707,-118.345511
	06:14am	Common Raccoon - <i>Procyon lotor</i>	#0091 Back up tree	33.742707,-118.345511
	06:14am	Common Raccoon - <i>Procyon lotor</i>	#0092 Down tree	33.742707,-118.345511
	06:17am	Common Raccoon - <i>Procyon lotor</i>	#0093 Down canyon	33.742707,-118.345511
	09:56pm	Common Raccoon - <i>Procyon lotor</i>	#0096 Up canyon	33.742707,-118.345511
11/14/2022	07:38pm	Coyote - <i>Canis latrans</i>	#0099 Two coyotes down canyon.	33.742707,-118.345511
	11:35pm	Wood Rat - <i>Neotoma macrotis</i>	#0100	33.742707,-118.345511
11/15/2022	12:55am	Wood Rat - <i>Neotoma macrotis</i>	#0101	33.742707,-118.345511
	11:55pm	Wood Rat - <i>Neotoma macrotis</i>	#0102	33.742707,-118.345511
11/16/2022	12:02am	Wood Rat - <i>Neotoma macrotis</i>	#0103	33.742707,-118.345511
	12:27am	Wood Rat - <i>Neotoma macrotis</i>	#0104 Down tree & cross canyon	33.742707,-118.345511
	01:59am	Wood Rat - <i>Neotoma macrotis</i>	#0105	33.742707,-118.345511
	02:02am	Wood Rat - <i>Neotoma macrotis</i>	#0106	33.742707,-118.345511

DATE	TIME	SPECIES NAME	COMMENT	LAT/LONG
11/17/2022	07:06am	House Wren - <i>Troglodytes aedon parkmanii</i>	#0108	33.742707,-118.345511
	07:08am	House Wren - <i>Troglodytes aedon parkmanii</i>	#0109	33.742707,-118.345511
	08:54am	Coyote - <i>Canis latrans</i>	#0110 Up canyon	33.742707,-118.345511


# **APPENDIX F**

## **TRAIL MANAGEMENT AND SIGNAGE ACTIVITIES**



# **2022 UNAUTHORIZED TRAIL CLOSURES**

Abalone Cove Reserve


 Vicinity of Spur Trail Closures


 Reserve Boundary


 Parking Lot

 Restrooms

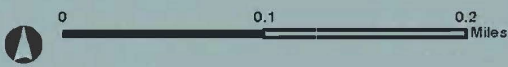
 Trailhead

 Vista Point

 Multiuse Trail

 Pedestrian Trail

 Pedestrian & Bike Trail









# Alta Vicente Reserve



 Vicinity of Spur Trail Closures  
RPV City Hall


 Parking

 Restrooms

 Trailhead

 Multiuse Trail

 Pedestrian & Equestrian Trail

 Road

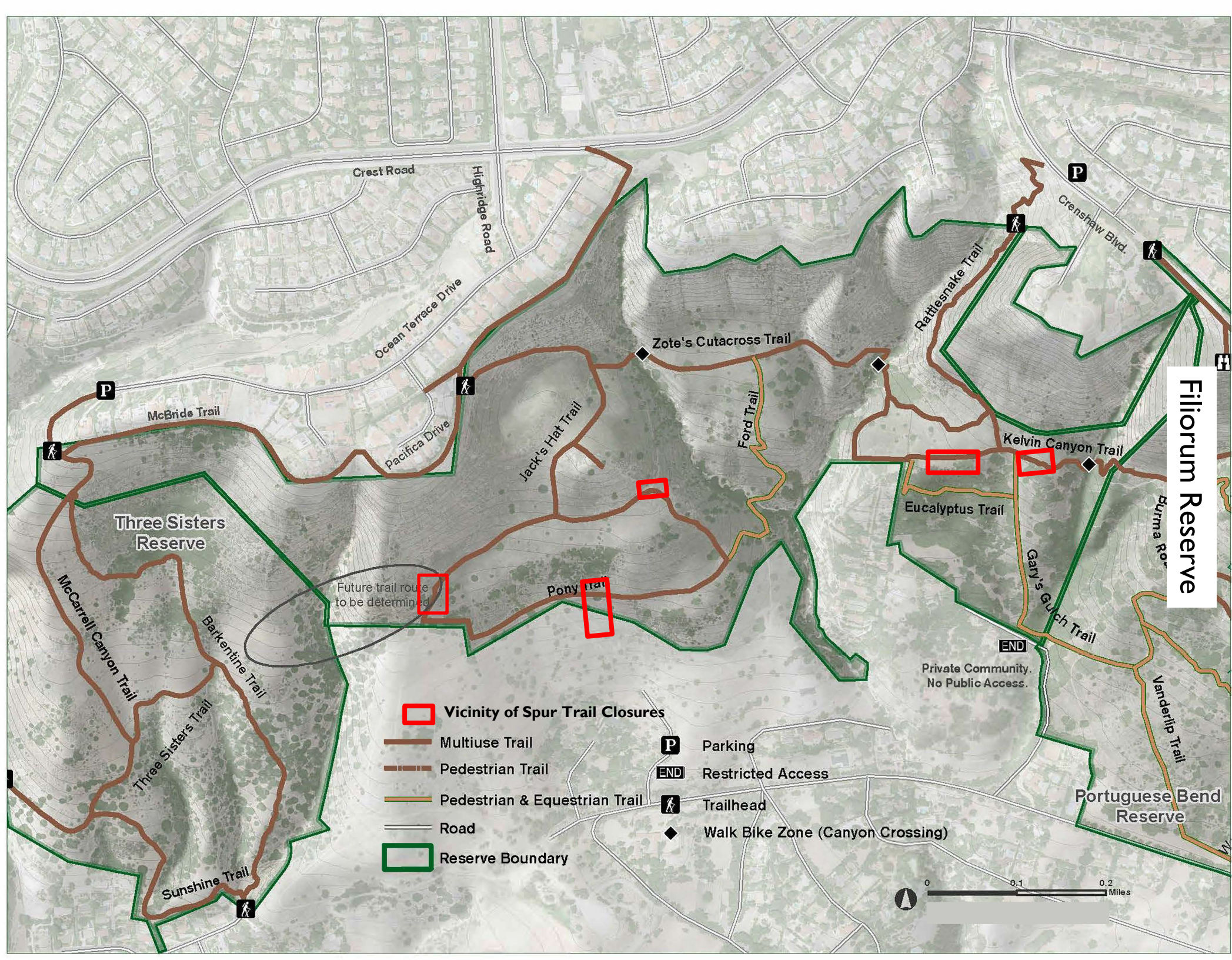
 Reserve Boundary



Map created June 15, 2015

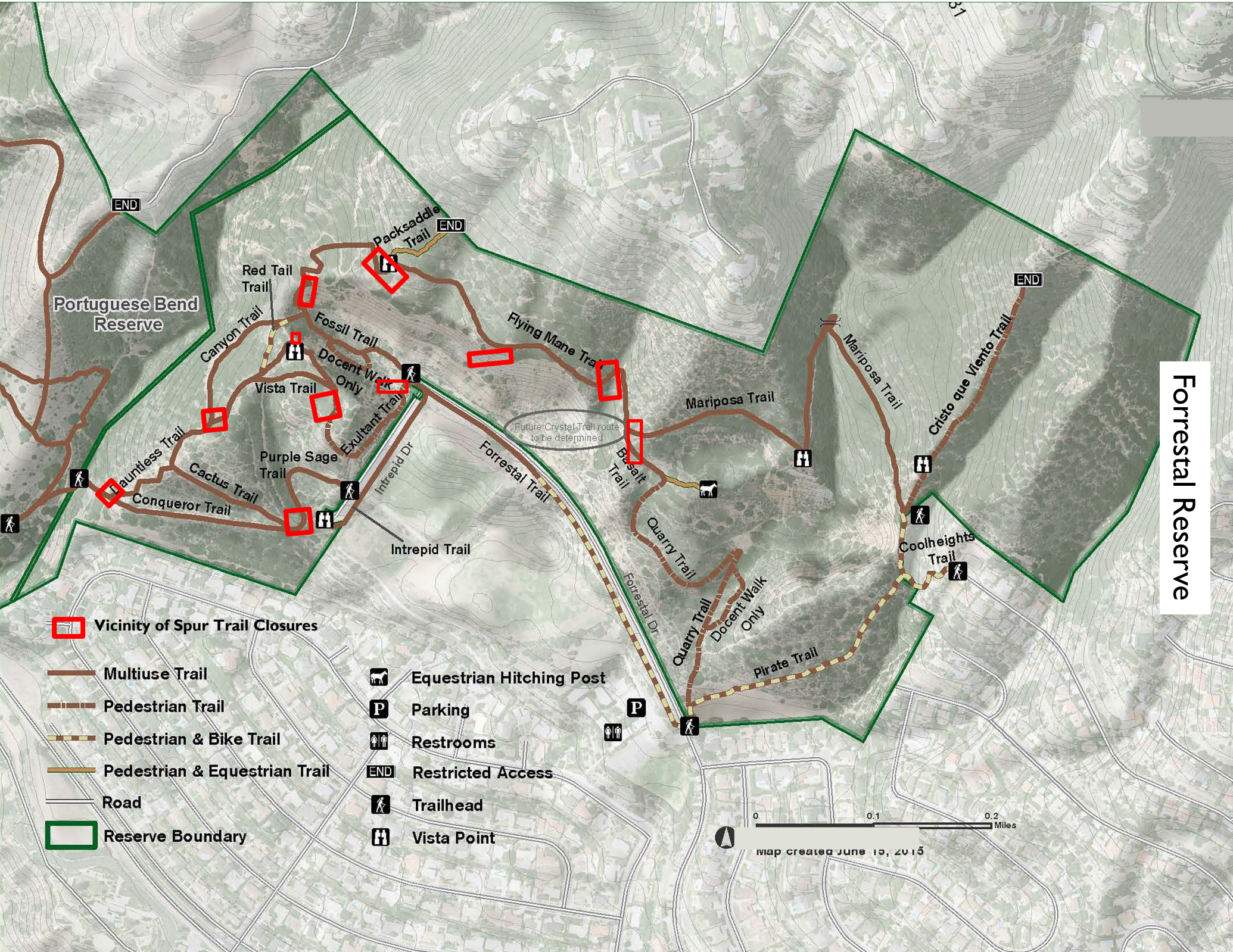
0.2  
Miles







# Forrestal Reserve



 Vicinity of Spur Trail Closures

-  Multiuse Trail
-  Pedestrian Trail
-  Pedestrian & Bike Trail
-  Pedestrian & Equestrian Trail
-  Road
-  Reserve Boundary

-  Equestrian Hitching Post
-  Parking
-  Restrooms
-  Restricted Access
-  Trailhead
-  Vista Point

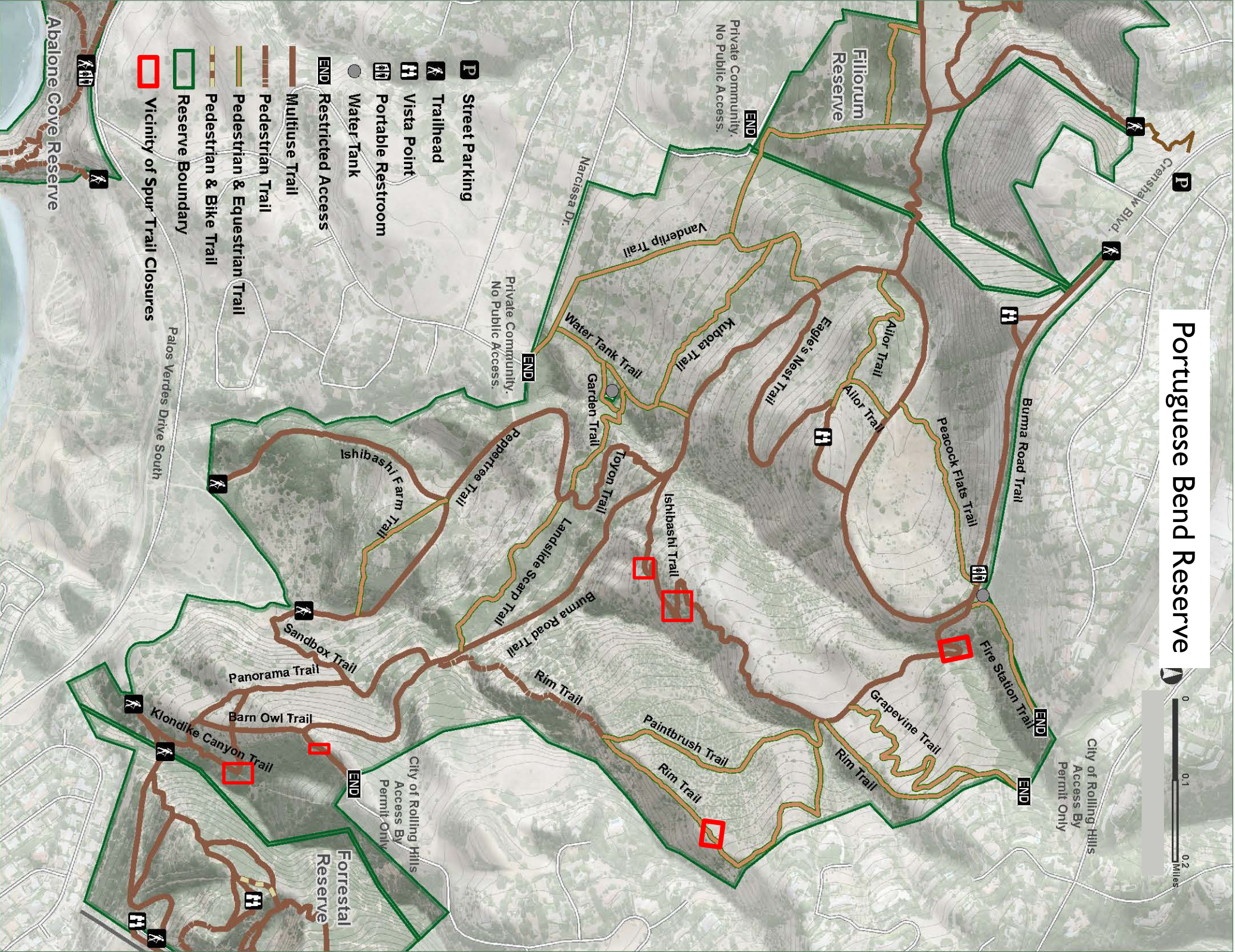
0 0.1 0.2 Miles  
map created June 13, 2013



# Portuguese Bend Reserve



0 0.1 0.2  
Miles



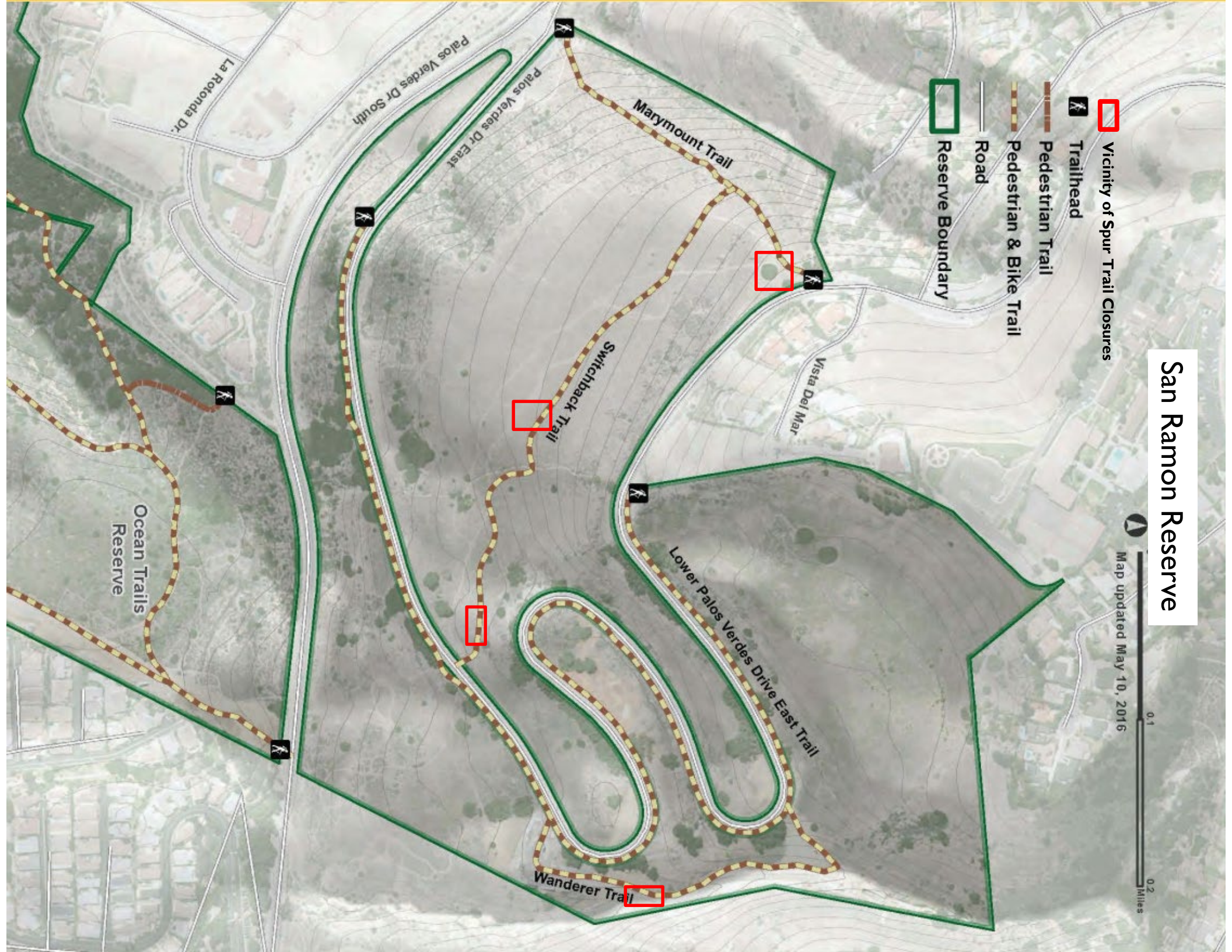


# San Ramon Reserve

Map updated May 10, 2016

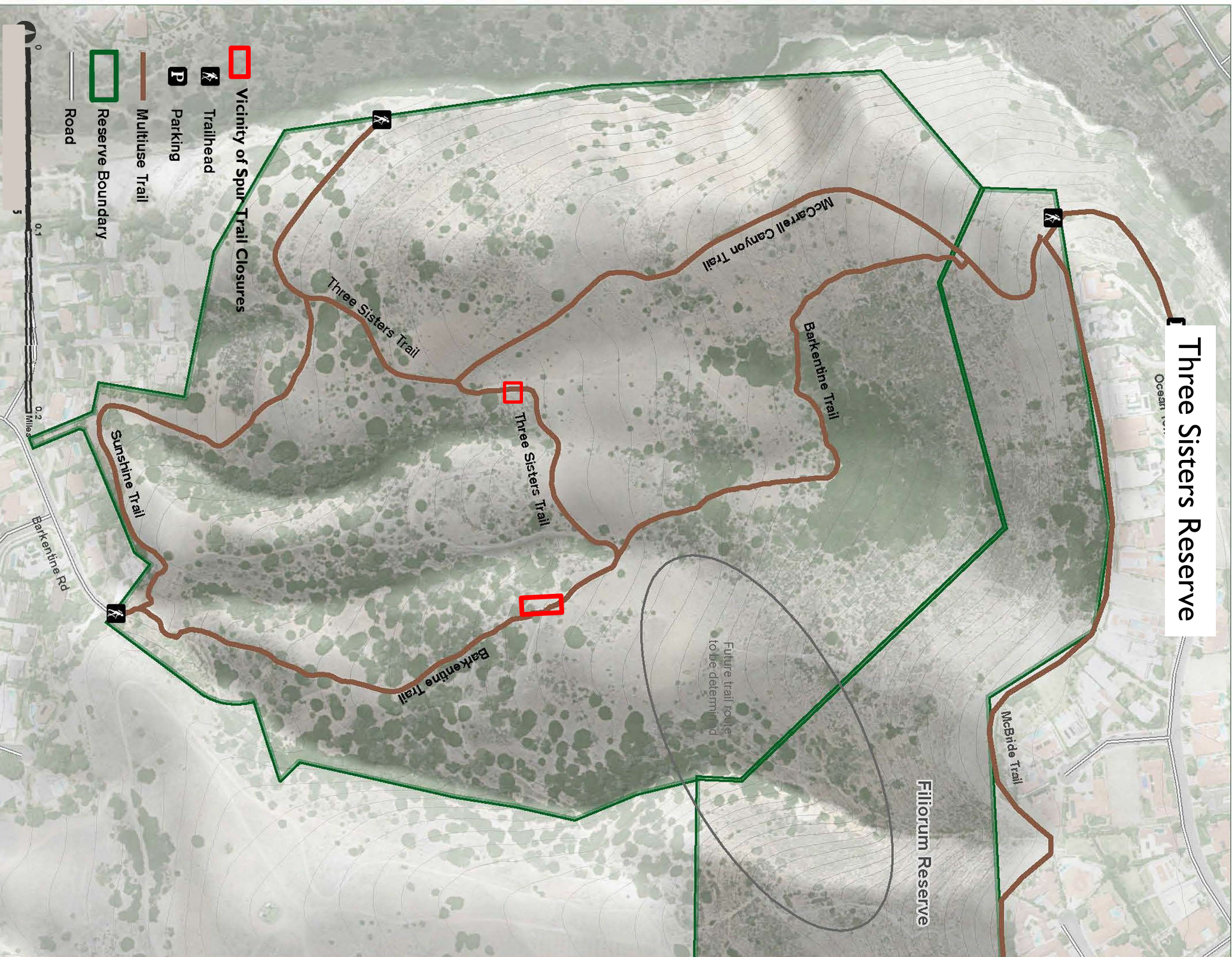
0.1 0.2 Miles

-  Vicinity of Spur Trail Closures
-  Trailhead
-  Pedestrian Trail
-  Pedestrian & Bike Trail
-  Road
-  Reserve Boundary





# Three Sisters Reserve





## **ONGOING/FUTURE TRAIL PROJECTS LIST**

## 2023 Trail Projects List

The following is a list of trail projects planned for the year based on priority and funding opportunities. This list is intended to outline project needs including trail repairs and more major spur trail closures but may be amended as conditions may change. Projects not completed will carry over to the following year and projects may be added to the list on an ongoing basis. In addition to the list below, smaller-scale projects including spur trail closures, signage repairs, tread repairs, etc. may be accomplished by the Volunteer Trail Crew, PVPLC Staff or City of Rancho Palos Verdes staff on an as-needed basis.

### Priority Ranking:

The following projects are ranked low to high with consideration of impacts to habitat, user safety, severity of damage and other issues. These rankings also take other considerations such as funding, feasibility, availability of staff or volunteers to accomplish project, and other factors into account.

*High* = poses immediate public use concern, significant impact to habitat, trespassing, etc.

*Medium* = spur trails and erosion issues that affect trail quality, may cause user dissatisfaction, or mildly impact habitat

*Low* = spur trails and erosion issues that are minor and may not impact habitat, but may not meet user satisfaction

Reserve / Trail Name	Issues	Priority
<b>Abalone Cove Reserve</b>		
Unnamed Beach Trail	Install retaining walls along this unnamed trail to repair slope caused by rock fall and water erosion from high tide. Alternative route for Sea Dahlia Trail.	Medium
Beach School Trail	Approx 100 ft upon entry from gate at Palos Verdes Drive South, fissure runs along East to West, most visible at the Orientation Panel.	Medium
Cave Trail	Trail erosion. Temporarily closed.	High
Gorge 1	Falling rock. Temporarily closed.	Low
Olmstead Trail	Drainage needs improvement. Rutting on lower half of the trail. May need grade dips to address water issues.	Low – Ongoing
Sacred Cove Trail (west to beach)	Trail erosion. Temporarily closed.	High
Sea Dahlia Trail	Erosion at upper stair area. Temporarily closed.	High
<b>Agua Amarga Reserve</b>		
Lunada Canyon Trail	General trail maintenance as needed.	Low- ongoing
<b>Alta Vicente Reserve</b>		
<b>Filiorum Reserve</b>		
Rattlesnake Trail	At trailhead near Crenshaw Boulevard, assess slope and install steps or retaining walls.	High
<b>Forrestal</b>		
Dauntless Trail	Continue to maintain check dams and grade dips	Low
Pirate Trail	At upper section, between Coolheights Trail and before Mariposa junction – wooden posts with cement base on Western side of trail are falling due to erosion.	Medium
<b>Lower Filiorum</b>		

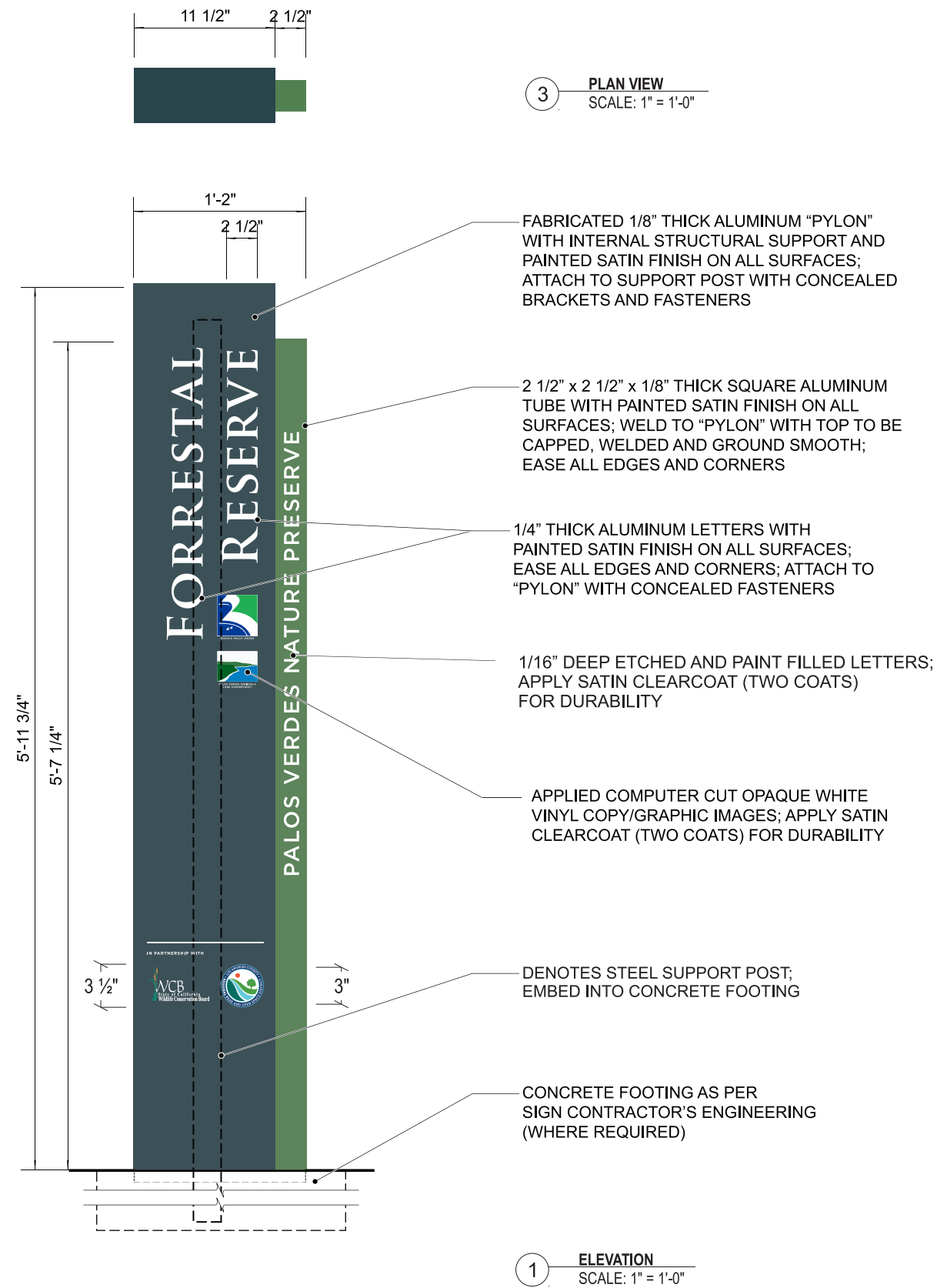
Jack's Hat Connector between Filiorum and Three Sisters	Build connector trail.	High
Plumtree Trail Access	Create connectivity from Plumtree Rd to Pony Trail	High
<b>Ocean Trails Reserve*</b>		
Catalina Trail	Erosion at bridge. Temporarily closed.	High
Coastal Switchback Trail	Erosion and trail failure due to landslide. Temporarily closed.	High
<b>Portuguese Bend Reserve</b>		
Burma Road Trail	Various locations along trail – assess fissures, land movement, and erosion. City to coordinate with Geologist, PVPLC, and conduct repairs as needed. Coordinate with SoCal Edison / Cal Water on infrastructure due to land movement.	High – ongoing.
Fire Station Trail	Continue to repair trail erosion caused by 2021 storms. Coordinate with Rolling Hills to clear drainage.	Medium
Garden Trail	Trail erosion / land movement / fissures. Continue to monitor.	Medium – continue to monitor.
Ishibashi Trail	Continue to maintain pruning to improve line of site. Continue to maintain erosion along tread as needed. Continue to delineate as needed.	Completed. Continue to monitor.
Rim Trail	Lower segment of trail temporarily closed due to erosion. Consider reroute site visit planned December 2022.	Low
Sandbox Trail	Continue to maintain check dams as needed.	High
Sandbox Trail	Install culvert at Sandbox Trail near Peppertree Trail for water flow.	Low
Vanderlip Trail	Continue to maintain grade dips made by Cal Water.	Completed. Continue to monitor.
<b>San Ramon</b>		
Switchback Trail	Delineate single path	Low
Wanderer Trail	West of trail. Network of illegal bike trails needs to be closed.	Medium
<b>Three Sisters</b>		
<b>Vicente Bluffs</b>		
Toveemor Trail	Assess closure area and rock fall.	Low – ongoing
<b>Vista del Norte</b>		
Vista del Norte Trail	Erosion from fuel modification	Medium

\*Trump National Golf Club is responsible for Ocean Trails Reserve trail maintenance per the City-Trump National Golf Club Agreement. A more comprehensive list is compiled separately.

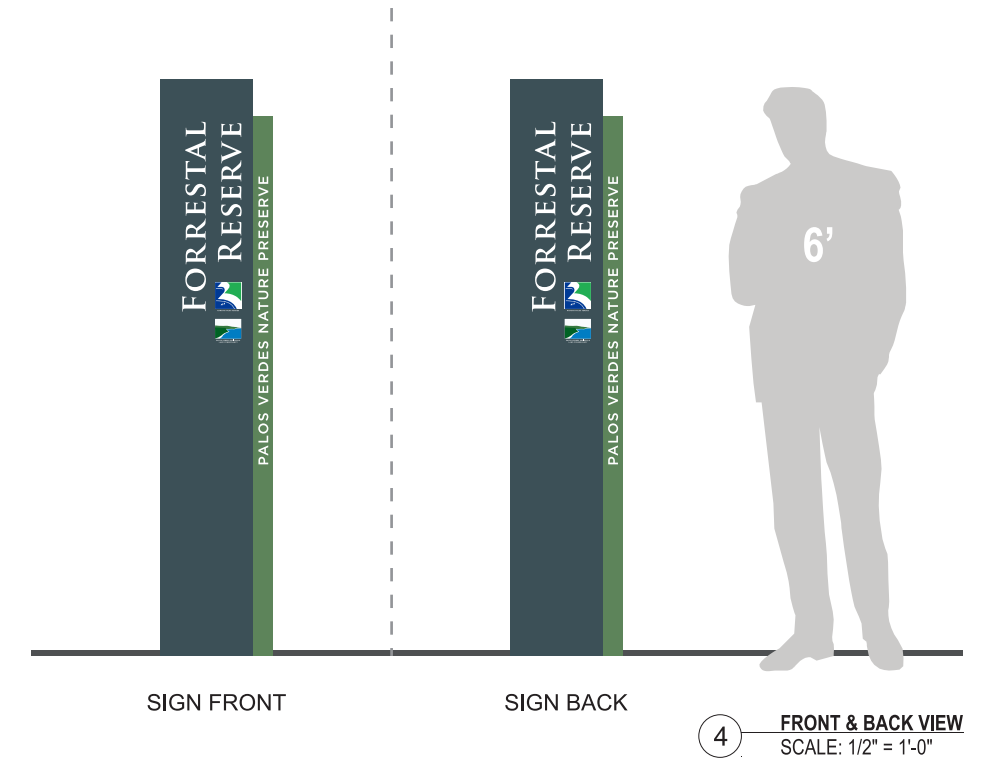
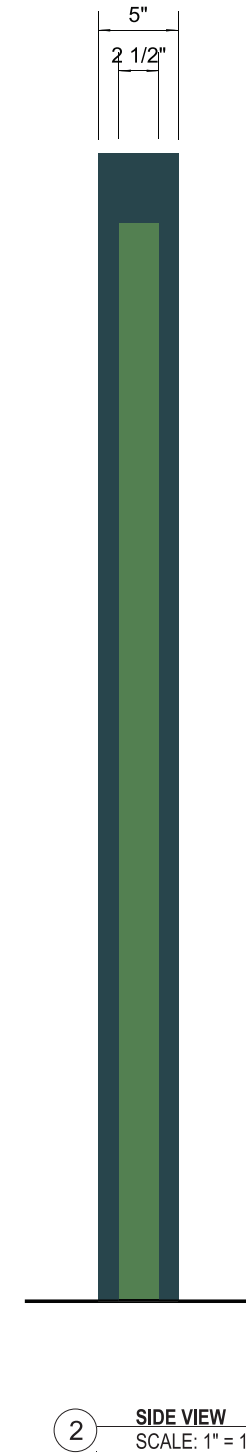
# **PVNP SIGNAGE DESIGNS**







**3 PLAN VIEW**  
SCALE: 1" = 1'-0"

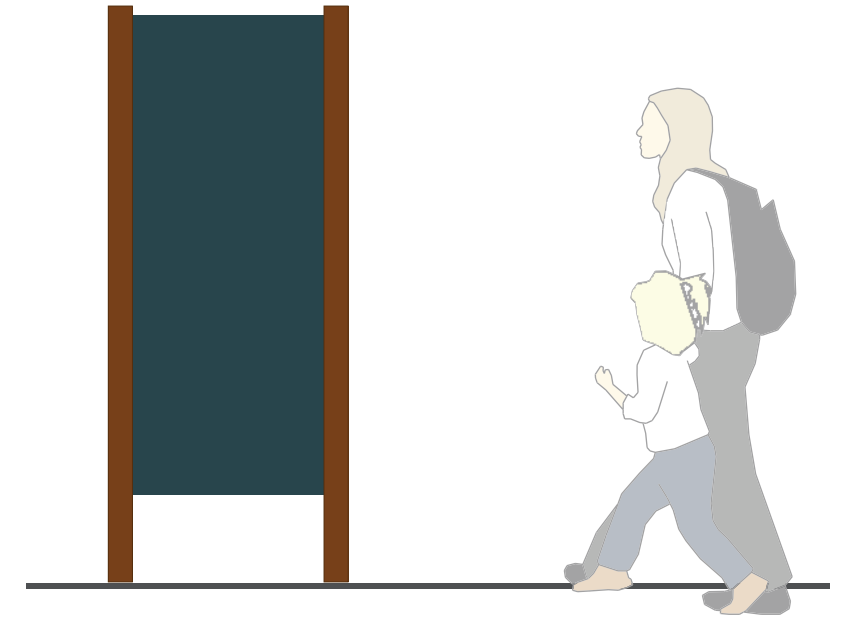
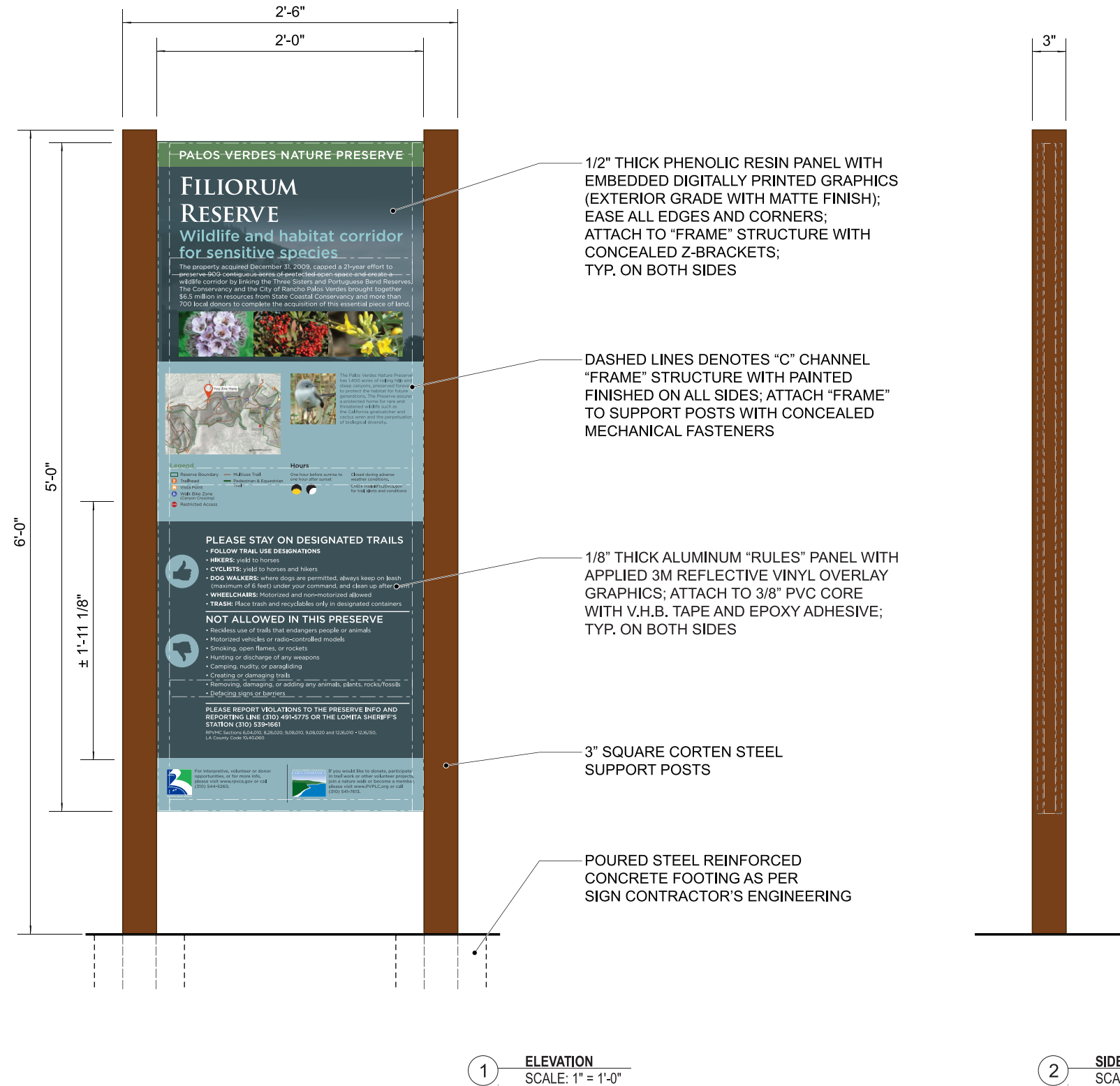


- GENERAL NOTE:
- 1) ALL EXPOSED SURFACES TO HAVE FINAL ANTI-GRAFFITI COATING WITH UV INHIBITORS.
  - 2) SIGN CONTRACTOR TO PROVIDE TO CLIENT A RECOMMENDED COMPATIBLE GRAFFITI REMOVER THAT DOES NOT REMOVE PAINT FINISH OR APPLIED GRAPHICS WHEN USED.



1 FORRESTAL FRONT & BACK  
SCALE: 3/4" = 1'-0"

3 THREE SISTERS FRONT & BACK  
SCALE: 3/4" = 1'-0"



SINGLE SIDED  
SIGN BACK  
(BLANK)

**4 SIGN BACK VIEWS**  
SCALE: 1/2" = 1'-0"

**GENERAL NOTE:**

- 1) ALL EXPOSED SURFACES TO HAVE FINAL ANTI-GRAFFITI COATING WITH UV INHIBITORS.
- 2) SIGN CONTRACTOR TO PROVIDE TO CLIENT A RECOMMENDED COMPATIBLE GRAFFITI REMOVER THAT DOES NOT REMOVE PAINT FINISH OR APPLIED GRAPHICS WHEN USED.





2 FILIORUM  
SCALE: 1" = 1'-0"

3 THREE SISTERS  
SCALE: 1" = 1'-0"





2'-0"

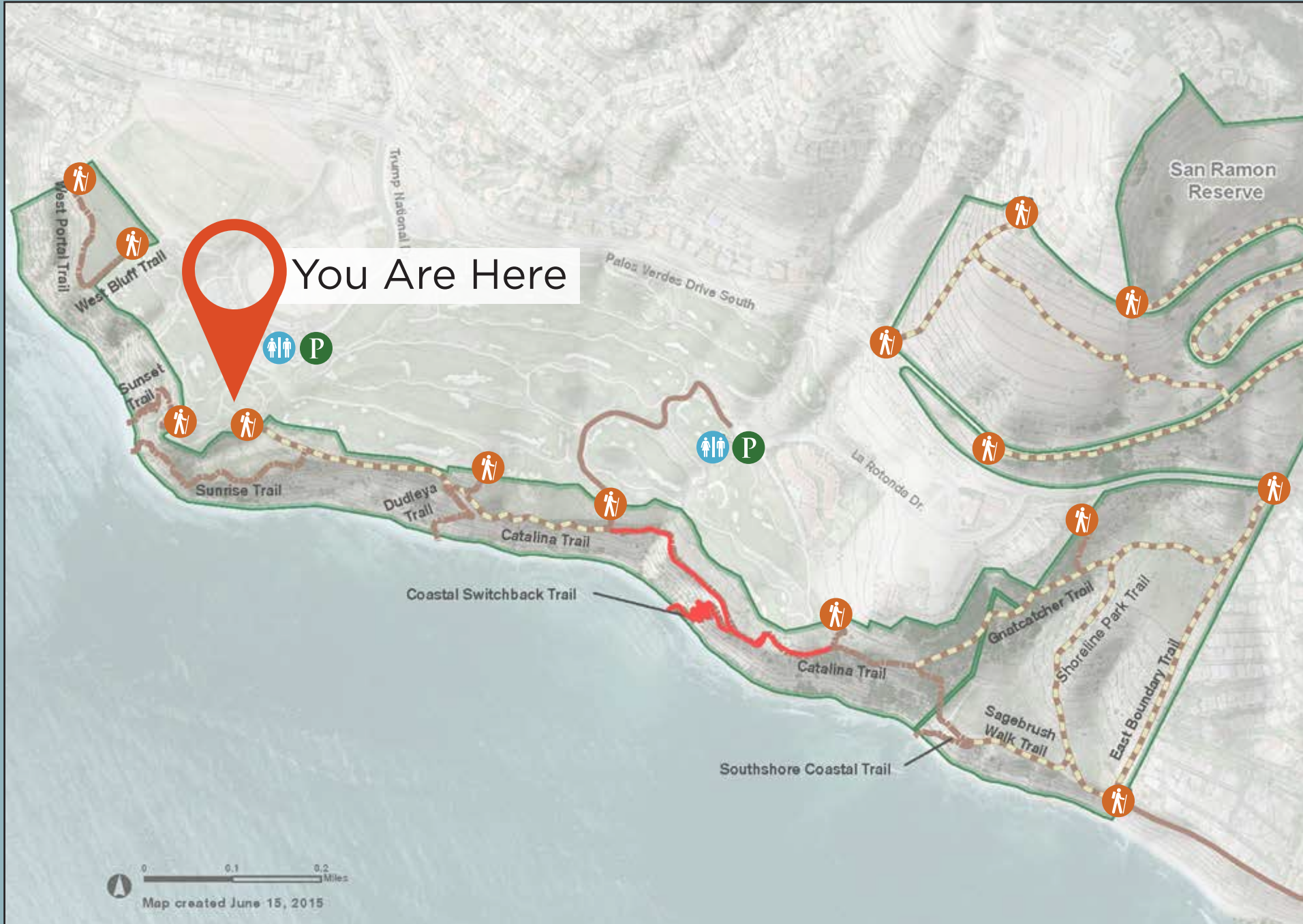
5'-0"

PALOS VERDES NATURE PRESERVE

OCEAN TRAILS  
RESERVE

Ocean views, coastal habitat,  
beach access

The 117-acre Ocean Trails Reserve includes preserved land restored with 250,000 local native plants installed as habitat for the federally threatened California gnatcatcher and cactus wren. The Reserve has three miles of trails with a number of routes that wind through grassland and coastal scrub habitat, providing beautiful ocean views and multiple points of beach access. It is a great place to see migrating species passing through Southern California on their way north in the summer and south in the winter months. Look for interesting local vegetation like *Dudleya virens*, desert thorn and purple fiddlenecks.



The Palos Verdes Nature Preserve has 1,400 acres of rolling hills and steep canyons, preserved forever to protect the habitat for future generations. The Preserve assures a protected home for rare and threatened wildlife such as the California gnatcatcher and cactus wren and the perpetuation of biological diversity.

Legend

- |                  |                        |
|------------------|------------------------|
| Area Closed      | Vista Point            |
| Reserve Boundary | Multiuse Trail         |
| Parking          | Pedestrian Only        |
| Restrooms        | Pedestrian & Bike Only |
| Trailhead        |                        |

Hours

One hour before sunrise to  
one hour after sunset



Closed during adverse  
weather conditions.

Check [rpvca.gov/trailalerts](http://rpvca.gov/trailalerts)  
for trail alerts and conditions

PLEASE STAY ON DESIGNATED TRAILS



- **FOLLOW TRAIL USE DESIGNATIONS**
- **CYCLISTS:** yield to hikers
- **DOG WALKERS:** where dogs are permitted, always keep on leash (maximum of 6 feet) under your command, and clean up after them
- **WHEELCHAIRS:** Motorized and non-motorized allowed
- **TRASH:** Place trash and recyclables only in designated containers

NOT ALLOWED IN THIS PRESERVE



- Reckless use of trails that endangers people or animals
- Motorized vehicles, e-bicycles, or radio-controlled models
- Smoking, open flames, or rockets
- Hunting or discharge of any weapons
- Camping, nudity, or paragliding
- Animals on the beach
- Creating or damaging trails
- Removing, damaging, or adding any animals, plants, rocks/fossils
- Defacing signs or barriers
- Vending and commercial services are not allowed

PLEASE REPORT VIOLATIONS TO THE PRESERVE INFO AND  
REPORTING LINE (310) 491-5775 OR THE LOMITA SHERIFF'S  
STATION (310) 539-1661

RPVMC Sections 6.04.010-6.04.050, 8.28.20, 9.08.010-9.08.020, 12.16.010-12.16.170,  
and 12.20.010-12.20.150



For interpretive, volunteer or donor  
opportunities, or for more info,  
please visit [www.rpvca.gov](http://www.rpvca.gov) or call  
(310) 544-5260.



If you would like to donate, participate  
in trail work or other volunteer projects,  
join a nature walk or become a member,  
please visit [www.PVPLC.org](http://www.PVPLC.org) or call  
(310) 541-7613.

PRODUCTION INFORMATION

DATE: 1/28/2022  
FILE NAME: Sign Type 20\_Orientation\_OCEAN TRAILS RESERVE  
SCALE: Update  
NOTES: Full-Size



25 North Mentor Avenue  
Pasadena, CA 91106  
626.793.7847

HUNT DESIGN

ADDITIONAL NOTES

- All artwork was up-to-date when released from Hunt Design, 06/2020.
- All artwork needs to be signed off and proofread by the Palos Verdes Peninsula Land Conservancy prior to starting fabrication.
- All maps will need the YOU ARE HERE icon moved to the proper location based on the orientation of each individual map. All content will therefore need to be signed off and proofread by the Palos Verdes Peninsula Land Conservancy prior to starting fabrication.



# APPENDIX G

## Volunteer Program



## I. INTRODUCTION AND SUMMARY

### I.1 Volunteer Programs

This report describes the components included within the larger Volunteer Program that serviced the Palos Verdes Nature Preserve. Specific activities are detailed for the reporting period January 1, 2022 to December 31, 2022.

Since 1988, volunteers have played an essential role in fulfilling the Palos Verdes Peninsula Land Conservancy's (PVPLC) mission to preserve land and restore habitat for the education and enjoyment of all. PVPLC is a non-profit organization that relies heavily on the support of community involvement to perform many of the tasks necessary to manage the Nature Preserves. Volunteers donate thousands of hours each year to help with office assistance, event planning, community education, habitat restoration, trail maintenance, and much more. This report divides the various volunteer programs into two categories: Community Involvement Volunteers and Stewardship Volunteers.

The first category, Community Involvement Volunteers, supports volunteer activities that focus on friend making, fundraising, and recommendations to staff on a variety of topics. This category is further divided into four sections which are detailed within the report:

- Committees and Advisory Boards
- Special Events and Office Assistance
- Education Docents and Nature Walk Leaders
- Interns

The second category, Stewardship Volunteers, supports activities that are performed on the land to assist with habitat management of the Preserve. In all, there are seven elements within this category that are described in more detail in the Stewardship Volunteer section of this report. The backbone of the program is our regularly scheduled Saturday Outdoor Volunteer Days that are open to participation by all and require no long-term commitment. Periodically, there are also individuals or groups that complete stewardship projects outside of the normally scheduled outdoor events. Boy Scouts and Girls Scouts interested in obtaining their final awards are two such groups. There are also several Stewardship Volunteer opportunities that require long term commitments. The seven programs are listed below:

- Outdoor Volunteer Days
- Team Leaders
- Scout Projects
- Adopt-a-plot
- Trail Crew (break out)
- Volunteer Trail Watch
- Community Science



In 2022, volunteers provided a grand total of 19,372.47 hours of service to support conservation, restoration and management of the Palos Verdes Nature Preserve. This represents a 20.5% increase over 2021. According to the Independent Sector, volunteer time in California is valued at \$35.56 per hour (based on Dollar Value of a Volunteer Hour, by State: 2021, Independent Sector), thus generating a total of \$688,885 of in-kind services. The amount of volunteer hours donated at each Nature Preserve or for a specific volunteer category depends on the size of property or specific projects that transpired during the reporting period.

## **2. COMMUNITY INVOLVEMENT**

### **2.1 Committees and Advisory Boards**

PVPLC is driven and supported by a thirteen-member volunteer board, which meets on a regular basis to strategize and direct the organization's mission. The PVPLC maintains numerous committees and advisory boards as well for the following purposes:

- To provide review and recommendations regarding organizational plans and policies
- To provide assistance with the operations of the organization
- To provide community input for PVPLC activities
- To provide a training and evaluation ground for potential members of the Board of Directors

This year, the Conservancy's committees contributed 2,228 hours in serving the Land Conservancy's mission. Hours for committee-involved board members are compiled with their board volunteer time. The committees that were active during the reporting period are listed below:

- Board of Directors
- Audit Committee
- Finance Committee
- Development Committee
- Investment Committee
- Stewardship Committee
- Special Events Committee(s)

### **2.2 Special Events and Office Assistance Volunteers**

The PVPLC relies on volunteers to assist with community engagement and other outreach events. Volunteers contributed 418.5 hours in 2022 to support events including numerous Earth Day events, Go Wild for the Peninsula events, Nature Walks, National Public Lands Day, Wild & Scenic Film event, Pastoral Dinner, native plant distribution, and tabling at community events. Office volunteers support day-to-day volunteer operations and donated 131.5 hours to the Conservancy.



### 2.3 Nature Walks

Nature Walk Leaders donated a total of 651 hours in 2022. PVPLC Board of Directors member Allen Franz and volunteer, Cindy Akiyama co-coordinate this group of dedicated volunteers and each prospective walk leader must have a high level of knowledge the local ecosystem, particularly the native and non-native plants found on the Peninsula. Leaders must go through extensive training and be willing to research and learn about local history, geology, flora and fauna. Continued research and exploration serves to add

to a walk leader's knowledge base, preparing them to give accurate and in-depth presentations to the public.

Walks are held all over the Peninsula, from the edge of the coast to deep within the canyons. Each leader designs his or her presentation to include special attributes and stories particular to a site. Nature walks occur once a month every month throughout the year, featuring a different location every time. With the pandemic affecting group gatherings, nature walk opportunities were adapted and many of the walks were held digitally.

### 2.4 Internships

Interns dedicate much of their volunteer time to helping the Land Conservancy's mission to educate and restore. In 2022, interns dedicated a total of 1,228 hours to various projects such as educational outreach, field trips, weed removal, native plant propagation, wildlife monitoring and much more.



### 3. STEWARDSHIP VOLUNTEERS

Volunteers play an integral part in helping PVPLC staff exceed our goals for restoring land in the Preserve. Outdoor volunteer days provide an opportunity for public volunteers to contribute to habitat and trail restoration efforts. Team Leaders provide leadership on Saturday events, the Trail Crew class volunteers build skills to maintain the trail system, and Volunteer Trail Watch reports vandalism and trail maintenance needs. The Adopt-a-Plot program, Citizen Science wildlife monitoring, scout projects, local environmental clubs and nursery volunteers are also Stewardship volunteers that support Conservancy conservation efforts within the Palos Verdes Nature Preserve, the native plant nursery and other management areas (PVNP and nursery are the only metrics outlined for this report).

Palos Verdes Nature Preserve Stewardship volunteer highlights in 2022:

- 19,372.47 hours of volunteer time, a 20.5% increase from 2021.
- Volunteers planted over 828 plants to assist with critical habitat restoration projects such as installing PVBB host plants and removing invasive species.
- Supported the Go Wild for the Peninsula campaign to preserve and restore 96 additional acres of land in the peninsula as a wildlife corridor.
- Hosted monthly guided nature walks at various locations throughout the peninsula.
- Trained 142 advanced/specialized volunteers.
- Distributed hundreds of native plants purchased by community members to create wildlife-friendly gardens on private land.
- Hosted 3 Companies - REI, Image Solutions, and HCTV - at corporate Outdoor Volunteer Days to support the conservancy's work restoring land and maintaining public nature preserves.

#### 3.1 Outdoor Volunteer Days

The PVPLC holds outdoor volunteer days nearly every Saturday of the year, held from 9am-12pm, excluding holiday weekends. The focus of these events is to restore native habitat, maintain the trail system, and do general maintenance of lands. We engage and empower young people through these programs to ensure education and stewardship on the Preserves in perpetuity. We work with local schools and colleges to have teachers bring groups of students or give incentives such as extra credit and service-learning hours for students who participate on the Saturday volunteer events. Also included in this summary are events catered for special groups and corporations. Rapid Response is an Outdoor Volunteer Opportunity held almost every Friday and Saturday from 9am to 12pm. During these events volunteers are invited to work alongside staff closing spur trails. Rapid Response volunteers contributed 669 hours maintaining trails within the PVNP.

##### 3.1.1 Native Plant Nursery

Activities in the Native Plant Nursery include transplanting seedlings from flats into individual containers, removing weeds from the containers. On occasion, groups and scouts help maintain the

shade structure, build plant benches and repair the weed barrier cloth. Volunteers help at the nursery during the week throughout the year. A total of 2,051 volunteer hours were contributed to nursery efforts in 2022.

### 3.2 Team Leader Program

The Team Leader program began in 2007 in response to the growing number of volunteers that were attending the Outdoor Volunteer Days. Team Leaders are volunteers, sixteen years or older, who assist in supervising the Saturday outdoor volunteer activities. They ensure that volunteers have adequate instruction and the tools necessary to complete the task. They also assist in educating the public about the PVPLC.

The program requires that interested volunteers attend a half-day weekend workshop where they learn the skills necessary to motivate and supervise volunteers during Saturday Outdoor Volunteer Days. Training involves practicing leadership skills and communicating restoration techniques. Team Leaders commit to working at least four volunteer days within one season or half-year.

The Team Leader Program has helped develop leadership skills in participants and has greatly contributed to the success of our Outdoor Volunteer Days. The quality of work from regular volunteers has increased with the guidance of Team Leaders. In addition to adult participants, many of the Team Leaders attend local high schools and universities. During the reporting period, the program has allowed these students to build leadership skills that they will find useful in their future.

### 3.3 Scout Projects

The PVPLC encourages Boy Scouts and Girl Scouts who are looking for projects to complete their final awards, Eagle Awards for Boy Scouts and Gold Awards for Girl Scouts, by providing them with opportunities to complete their projects on preserves the PVPLC manages. This collaboration is beneficial to the scout groups, the PVPLC, and the public that uses the preserves. Scouts work under the mentorship of one of the PVPLC staff to complete their projects and are steered toward objectives that meet the PVPLC stewardship goals. In 2022, Scouts donated thousands of dollars of materials, planted hundreds of native plants, built tables and protective cages for nursery plants, installed trail baseboards and donated 1,675 hours of time.





### 3.4 Trail Crew Program

The Volunteer Trail Crew class offered is based on the Basic Trail Maintenance class developed by Frank Padilla, Jr. (retired California State Parks Supervisor), and Kurt Loheit. Originally started in 1992, the class focused on both volunteer and agency skill building. Adopted by the Los Angeles District of California State Parks and later the Southern California Trails Coalition, it became the first step in advanced classes for crew leader

training and design and construction classes, allowing a structured path for participants to build skills associated with trails from basic maintenance to highly advanced techniques. The class is a combination of classroom and hands-on training to familiarize the participants in all aspects of trail maintenance. The course emphasizes safety, assessments, basic maintenance skills, water control, erosion sources, terminology, proper tool use, basic survey skills, resource considerations, and user experience and maintenance value. Volunteers who demonstrate proficiency in each learned skill and fulfill a yearly indoctrination will maintain status as a qualified Trail Crew member.

In 2022, the volunteer Trail Crew contributed a total of 431 hours to maintaining the Preserve's trail system. These hours include the second-Saturday monthly class trainings as described below, as well as additional trail work, such as weed whacking or spur trail closures, executed by Trail Crew members outside of the classes.

Participants must be at least 18 years old and must first take the introductory class. The course can be taken at the participant's own pace and it is estimated to take about a year to complete. There are scheduled Trail Crew Skills Classes that coordinate with the trail instructor's availability and the PVPLC Outdoor Volunteer Workday schedule.

Trail Crew Events			
Month	# Volunteer Hours	Location	Project/Skill Learned
January	49	San Ramon and Portuguese Bend	Grade dip, spur closure, tread repair on Switchback & Marymount trails. Tread repair on Fire Station trail.
February	34	Forrestal	Tread repair, installed 6 check dams, spur closure on Barn Owl Trail.
March	33	Abalone Cove	Repaired rock trail on Abalone Cove trail.
April	51.5	Forrestal & Portuguese Bend	Rock retaining wall on Red Tail trail to prevent soil erosion from reaching trail. Tread repair and spur closure on Garden trail.
May	28	Portuguese Bend	Cut back weeds on Ishibashi Farm trail and tread repair on Sand Box trail.
June	17	Forrestal	Check dam and pruning on Pirate Trail.
July	20	Filiorum	Built side ditch to prevent trail damage due to flooding / Pruning on Vanderlip trail.
August	75	Hess Park	Trail Crew Introductory Class.
September	48	Portuguese Bend	Elevated Rattlesnake trail entrance to sidewalk level.
October	45	Forrestal	Repaired Conqueror trail water Damage: tread repair, rock retaining wall, bench cut outsloping.
November	21	Portuguese Bend and Abalone Cove	Tread repair/stormwater damage repair by Fire Station trail. Spur closer, bench cut, tread repair at Sacred Cove View and Inspiration Point.
December	32	Forrestal	Grade dips, tread repair on Pirate, Cristo Que Viento & Mariposa

### 3.5 Volunteer Trail Watch Program

The mission of the Palos Verdes Nature Preserve Volunteer Trail Watch Program is to serve as eyes and ears of the City of Rancho Palos Verdes and the Palos Verdes Peninsula Land Conservancy with a view to 1) protect the natural resources of the Palos Verdes Nature Preserve, including the flora and fauna as well as the geology, topography and scenic landscape, and 2) enhance the safety of, and promote an enjoyable experience for all Preserve visitors. The Volunteer Trail Watch Program was initiated in 2013 to help educate trail users about appropriate trail use and monitor preserve misuse. In 2022, volunteers dedicated 3,292 hours to the program through field implementation activities and reporting observations through the web portal for record keeping.

### 3.6 Community Science

Volunteers help the PVPLC monitor wildlife on the Preserve in order to document populations and their response to restoration efforts. Community Science volunteers contributed 910 hours to documenting the behavior of cactus wrens and the evidence of mammalian populations like coyotes and foxes through tracking efforts.

**APPENDIX H**

**QUARTERLY ENFORCEMENT  
REPORTS**



## MEMORANDUM

**Date:** May 3, 2022  
**To:** Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes  
Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes  
**From:** Senior Park Ranger Taylor Fox  
**Subject:** 1<sup>st</sup> Quarter Rancho Palos Verdes Ranger Enforcement Report

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### **PRESERVE VISITOR CONTACTS SUMMARY**

January 1 – March 31, 2022

3 Full-time Park Rangers patrolled the Preserve during this period.

2 Part-time Parking Enforcement Rangers patrolled access points, educated patrons, and enforced ParkMobile Implementation on Crenshaw Boulevard.

Total Public Contacts: 8,164

#### **Significant Facility Closure Events**

During the first quarter the City had a significant rain event that resulted in Preserve closures January 1 and January 2 and again on March 28 and March 29. The Preserve also sustained significant trail damage and erosion from the rains, and trail repairs are ongoing.

Two beach closures took place during this reporting period, resulting in the partial closure of trails and the respective beach property. On December 30, a beach closure advisory was issued in swim areas around Port of Los Angeles and the City of Long Beach, including Ocean Trails Beach and Rancho Palos Verdes Beach due to a sewage leak. The closure was lifted for all beaches except for Cabrillo Beach in San Pedro as of January 3. Secondly, on January 15, OSM staff closed thirteen beach access trails (affecting Vicente Bluffs Reserve, Abalone Cove Reserve / Park, and Ocean Trails Reserve) in response to a Tsunami Advisory issued by the National Weather Service.



## Enhancing Public Participation



To facilitate public participation and promote transparency in operations, the Recreation and Parks Department posts public notices at key trailheads of upcoming public meetings pertinent to Preserve operations and management. These notices also include instructions on signing up for the Preserve listserv group. The Department is excited to announce that we have added QR codes to our trailhead notices to make getting involved and staying informed even easier. Look out for our new notices at key Preserve trailheads!

## Welcome Park Ranger Wolterding

Ranger Wolterding joined the Open Space Management (OSM) team in February 2022 as a full-time Park Ranger. Ranger Wolterding will patrol the 1,400 acres of the Preserve, educate patrons about park rules and regulations, and enforce violations.

Ranger Wolterding has previous experience in law enforcement and public safety in Virginia and New York and trails maintenance with the Palos Verdes Peninsula Land Conservancy.



## Trainings and Coordination:

### Los Angeles County-Wide Trails Task Force Quarterly Meeting

(January 27): The City is a member of the Los Angeles County-wide Trails task force. Main topics of the meeting included discussion on how attendance appears to remain high during the pandemic, although the intense surge pandemic-related recreational and entertainment venue closures has ended. Additional topics included how to take attendance on trails, including popular trail counters, and management of e-bikes on trails.

### Girl Scout Daisy Troop 70513 (March 20):

Rangers met with Rolling Hills Estates Girl Scout Daisy Troop 70531 to practice Leave No Trace Principles and learn about what Park Rangers do in the Palos Verdes Nature Preserve!



### Water Rescue Training (Various Trainings in February and March): Los Angeles County Fire Department Lifeguards conducted various water

rescue trainings within Sacred Cove Beach to train current and new staff on water safety.

## **Project Coordination & Emergency Work:**

Open Space Management (OSM) staff help to coordinate multiple projects within the Preserve to ensure Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP / HCP) compliance with PVPLC, to implement trail closures and public safety measures, and to provide public notification. Below are a list of projects OSM staff helped coordinate with PVPLC, the Public Works Department, and public utilities in the first quarter:

Jan. 25: Southern California Edison (SCE):  
Infrastructure Maintenance at Alta Vicente Reserve  
(Prickly Pear Trail)

Feb. 10: SCE: Infrastructure maintenance at Alta  
Vicente Reserve (Prickly Pear Trail)

March 28-July 2022: SCE and other utilities  
undergrounding facilities at Crenshaw Boulevard

March 21-April 29: Water tank maintenance in  
Portuguese Bend Reserve at Burma/Fire Station  
Trail



## **OVERALL VISITOR CONTACTS:**

### **Total Contacts: 8,164**

Hikers: 6,915  
Dog Walkers: 703  
Cyclists: 520  
Equestrians: 26  
Warnings: 122

### **Calls for Assistance: 7 transports**

Heat exhaustion & heat stress: 4  
Other (i.e. underlying condition, sprained ankle): 3

### **Preserve Information and Reporting Hotline Calls: 32 calls**

Trail Status and General Information: 11  
Parking Issues: 4  
Dogs Off Leash / Aggressive Dogs: 4  
Maintenance: 4  
Use of Spur Trail / Closed Areas: 2  
Lost / in Distress: 4  
Injured Wildlife: 3

## **ENFORCEMENT SUMMARY:**

### **Parking Citations Issued: 716**

#### **By Violation:**

Park by Permit – 677  
Parking Lot / Preserve / Park Hours- 3  
Posted Temporary No Parking / Fire Lane – 28  
Handicap Zone –8  
Other- 58

#### **By Location:**

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) – 519  
Del Cerro Park – 166  
Abalone Cove Reserve - 19  
Forrestal Reserve – 11  
Vicente Bluffs Reserve – 1

### **Notice to Appear Citations Issued: 15 Total**

#### **By Violation:**

Closed Area – 12  
No Animals on Beach- 3

#### **By Location:**

Abalone Cove Reserve – 7  
Forrestal Reserve – 3  
Portuguese Bend Reserve – 4  
Ocean Trails Reserve – 1

## **ACTIVITY REPORT BY RESERVE:**

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Numbers do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

### **Abalone Cove Reserve:**

	Public Contact	Education	Warning	Enforcement
Hikers	300	42	16	5
Dogs	2	3	2	2



On January 6, OSM Staff identified a deceased coyote on the sidewalk adjacent to Beach School Trail. The cause of death is unknown but believed to have been roadkill. Los Angeles County Animal Control was informed and retrieved the coyote on January 9.

On January 9, a broken sprinkler was reported in the habitat adjacent to Chapel View Trail. Water was shut off immediately after the report was received. The Palos Verdes Peninsula Land Conservancy was notified because the area is an active PVPLC restoration area. There was no impact on the trails.

On January 19, OSM Staff observed four dead birds: one seagull and three cormorants at the beach. Rangers notified Los Angeles County Animal Control, and the birds were retrieved on January 23.

On January 20, a leak resulted in flooding at Abalone Cove Park. Stay Green personnel assisted in shutting off the mainline and are continuing to work on repairs.



On February 8, OSM Staff installed tension cables to provide additional reinforcement to the “Area Closed” sign.

On March 6, approximately 15 trash cans along the coast, including at Abalone Cove Park and San Ramon Reserve, were vandalized. The inner linings of the trash cans were removed, and the trash cans were strewn about.

OSM Staff cleaned up the garbage and returned the cans to their intended locations.

On March 11, OSM Staff contacted Los Angeles County Animal regarding an injured cormorant on Abalone Cove beach.



### Marine Protected Area (MPA) Report

In response to an increase of poaching within the City, OSM Staff initiated Tide Pool Patrols to patrol the City’s two MPAs, the Abalone Cove limited take SMCA and the Point Vicente no-take SMCA. June 27, 2020, was the first date of these new patrols. This report captures the data collected from January 1, 2022 to March 31, 2022.

Results and Future Direction: During this reporting period, there was a decrease in poaching activity when compared to the last quarter. Currently, most violations that occur are people handling wildlife or removing wildlife from the tide pools for

observation, making up 96% of violations observed during this period. Consumptive forms of take, such as rod and reel fishing and harvesting animals to be consumed, are generally uncommon, making up 3% of violations observed. Additionally, most violations occur within low tides, which may vary from 1 to -2 feet. For example, January 29 and 30 as a result of low tide during normal operational hours, there were 68 collecting without intent to take. Overall, staff continue to see high compliance rates when contacting those engaged in MPA violations, with most people contacted simply being unaware of the MPAs or the laws surrounding them. For the future, OSM will continue to patrol our MPAs, with a focus during low tide events and in problem areas.

### **Aqua Amarga Reserve**

	Public Contact	Education	Warning	Enforcement
Hikers	5	0	0	0
Dog	2	1	1	0

Signage was placed to amend the “Trail Ends in 500 ft at City Boundary / No Through Access” sign located at Lunada Canyon Trail near the Palos Verdes Estates border (installed October 2021). The new sign removes the wording that there is “no through access,” but users should be advised that the Lunada Canyon trail ends, and rules and regulations in Palos Verdes Estates may differ.

### **Alta Vicente Reserve**

	Public Contact	Education	Warning	Enforcement
Hikers	12	3	0	0
Dog	2	0	0	0

On March 27, a vehicle collision occurred on Palos Verdes Drive South near Prickly Pear Trail. The adjacent cactus was damaged, and some vehicle debris remained overnight. The vehicle was towed later that day, and Los Angeles County Sheriff Department was notified. Additionally, the Palos Verdes Peninsula Land Conservancy was notified to assess habitat damage.

### **Filiorum Reserve**

	Public Contact	Education	Warning	Enforcement
Hikers	126	30	6	0
Dog	14	1	1	0

Biker	10	0	0	0
Equestrian	4	0	0	0

On March 15, the Los Angeles County Sheriff Department received a report of a female hiker who was bitten by a rattlesnake. 911 was called after she began to have difficulty breathing.

Rangers continued to see food scraps discarded on the trails and overlook areas within this Reserve. Food scraps, including orange and banana peels on the trails are considered litter, as they are not natural to the area and may attract animals. Staff will continue to patrol these areas and educate the public to ensure they adhere to Leave No Trace Principle No. 3: pick up all your waste, including granola bar wrappers, empty water bottles, and food scraps!



### **Forrestal Reserve**

	Public Contact	Education	Warning	Enforcement
Hikers	371	21	5	3
Dog	74	3	4	0
Biker	61	4	4	0

On January 29, Ladera Linda Community Park Staff was notified of individuals in a closed area by Quarry Trail. The reporting party stated that individuals were collecting rocks. Rangers proceeded to the location reported and confirmed three individuals were in a closed area with small tools prospecting for quartz. The individuals were educated, cited, and escorted out of the area.



### **Ocean Trails Reserve**

	Public Contact	Education	Warning	Enforcement
Hikers	515	53	5	0
Dog	85	33	24	1
Biker	2	0	2	0

During this reporting period, OSM Staff continued to coordinate closures at Coastal Switchback Trail and the Bridge near Lakeview Trail.

On January 9, a sprinkler broke on a residential property adjacent to East Portal Trail. A section of the trail was flooded as a result. Cal Water was able to shut off the water. Rangers inspected the trail for any damage and made minor repairs to repair the tread.



On January 19, Rangers contacted two e-bike riders on Sunrise Trail. They confirmed the bicycles were e-bikes. Bicycles are permitted on Catalina Trail and select trails on the Eastern side of the Reserve. However, e-bikes are not permitted in the Palos Verdes Nature Preserve or City Parks, per RPVMC 12.16.020.

During this reported period, Rangers received reports of nude photography taking place on Rancho Palos Verdes Beach during weekdays near sunset. Nudity is not permitted in any public park, street, right-of-way, playground, beach, or the waters adjacent thereto, or any other public place or accommodation, or in any place open to the public per the RPVMC 12.16.100. Professional photography and filming is also not permitted without a City permit, as mandated by the RPVMC 9.16.020 and the City's Public Use Master Plan (PUMP).

Additionally, Rangers received public reports of an increased dog presence on Rancho Palos Verdes Beach, both leashed and off-leash. Animals are not permitted on the beach, per the RPVMC 12.16.050. Signage vandalism also took place. Rangers have coordinated with Trump National Golf Staff to increase and maintain signage. Rangers have also increased patrols to educate and enforce the above activities. When contacted, many individuals state they accessed inaccurate information through social media sites, such as All Trails, that suggest dogs are allowed on City beaches. Park Rangers are contacting All Trails to try to correct the misinformation.







On January 27, Rangers identified and dismantled a fire pit. The firepit had been made of rocks, charcoal, and charcoal lighter fluid.

On February 1, Los Angeles County Fire Department responded to a fire that took place within the California Coastal Trail adjacent to Palos Verdes Drive East and Palos Verdes Drive South. There were six burned bushes along the sidewalk on Palos Verdes Drive South.



On February 22, a dinghy boat was located on Ocean Trails Beach near Southshore Coastal Trail. At the time, the boat could not be removed due to strong winds. The dinghy boat had expired tags, and the previous registered owner was deceased. The dinghy was transported out of



the beach on February 24 and was discarded.

On March 1, OSM staff installed a “No Rock Throwing” sign at the bottom of Sunset Trails to remind the public of the beach below. Staff had been informed on several instances where rock throwing took place by members of the public.

On March 11, Rangers were notified of an injured pelican on Rancho Palos Verdes Beach below Sunrise Trail. Los Angeles County Animal Control was called and escorted by OSM Staff. The pelican was rescued and taken to International Bird Rescue in San Pedro.

On March 27, a fire ignited near the public trails adjacent to Ocean Trails Reserve. Los Angeles County Fire Department responded and was able to extinguish the fire. The cause of fire is under investigation.

### **Portuguese Bend Reserve**

	Public Contact	Education	Warning	Enforcement
Hikers	5,403	616	25	2
Dog	503	27	17	0
Biker	445	24	7	2
Equestrian	22	0	0	0

On January 2, Staff inspected trails to ensure trails had sufficiently dried, and hazards were identified and removed, to reopen to the public. Among several items, Staff removed several medium boulders that had fallen from the adjacent slope to ensure safe vehicle access for emergency and maintenance vehicles. The grade dips installed last Winter (January 2021) continued to divert most of the water off the trail resulting in minimal damage to trails.



Several trails remained closed due to damage caused by the storm. The City is coordinating with the Geologist, as well as with Palos Verdes Peninsula Land Conservancy for inspections and repairs. The following trails in this Reserve were closed effective January 3: Fire Station Trail, Sandbox Trail, and a section of Burma Road Trail between Landslide Scarp Trail and Rim Trail. Garden Trail remained closed due to an emergence of erosion on the trail bed.



On January 6, Sandbox Trail was reopened after repairs were made by OSM staff. Additional maintenance procedures will be needed to inspect and assess water flow during rainstorms and to minimize impacts to the trail.



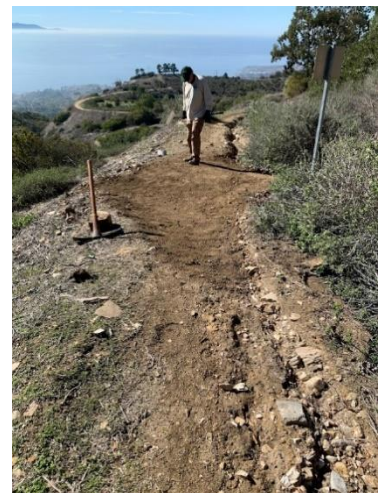
On January 8, OSM staff conducted minor repairs on trails with minor ruts formed by water from recent rains. These included Ishibashi Trail, Burma Road Trail, and Watertank Trail Junction.



On January 9, several instances of graffiti were identified and removed by OSM staff. Items that could not be removed were reported to the City's Contractor, GPC, for removal.



On January 17, Fire Station Trail was reopened after PVPLC Volunteer Trail Crew conducted several repairs.





On February 6, Rangers received calls requesting medical assistance. Rangers were able to assist with both incidents: one on Burma Road Trail, and the second at Eagle's Nest Trail.



On February 20, a deceased hawk was found near Burma Road Trail. This is the third time that a predatory bird was found deceased with no head in the Portuguese Bend Reserve within the last several months. The incident was reported to the California West Nile Agency and the California Department of Fish and Wildlife.

On February 20, a group was contacted regarding take of flora and fauna. The group had cut several branches of *Artemesia californica*. The group was educated on Preserve rules and the plant was confiscated.



On March 3, Rangers received a report of a deceased bird of prey on private property within the Portuguese Bend Community Association. Rangers contacted Los Angeles County Animal Control, who removed the bird.

On March 12, Rangers were contacted by a female hiker who was seen carrying her dog. The hiker stated that her dog was bitten by a snake on Peacock Flats Trail around 11 a.m., and another member of her group had taken a picture of the snake. Rangers confirmed it was a rattlesnake. She was advised to contact a local veterinarian immediately.

On March 18, Rangers were approached by a dog owner that had encountered what they believed was a rattlesnake. The dog owner was not certain if their dog had been bit. The dog owner was advised to notify the veterinarian. This incident is the second incident of a potential or confirmed rattlesnake sighting at this location. As a result, additional signage was placed on Peacock Flats Trail to educate hikers to use caution and always stay on trail!



On March 25, Rangers observed several instances of vandalism on the rock wall at Burma Road Trail and Peacock Flats Trail and adjacent carsonite markers. A GPC report was submitted for graffiti removal.



## **San Ramon Reserve**

	Public Contacts	Education	Warning	Enforcement
Hikers	6	6	0	0
Dog	1	0	0	0

On February 3, the San Ramon Reserve monument sign located at the top of Marymount Trailhead was recently defaced with graffiti and had etchings carved onto it. It is currently being repaired. The graffiti incident was reported to the Los Angeles County Sheriff Department.

On February 23, OSM staff located a shelter erected from branches and plastic twine. There was no personal property, or evidence of an encampment. Several tools were confiscated, and the shelter was disassembled.



Throughout the reporting period, Staff conducted illegally dumped item and litter abatement along the turnouts and adjacent habitat areas within the Reserve. Large items removed included wood, vehicle fender panels, a dishwasher, and a tire.

On February 24, Staff observed a dirt bike jump in the habitat within San Ramon Reserve. The bike jump was removed by March 1. Staff continues to coordinate with Palos Verdes Peninsula Land Conservancy on this issue.



### **Three Sisters Reserve**

	Public Contacts	Education	Warning	Enforcement
Hikers	7	12	0	0
Dog	2	2	0	0
Biker	1	0	0	0

Park Rangers reported several spur trails within the Three Sisters Reserve. Some spur trails may be animal trails that become widened and compact by human use. They pose a detrimental impact to the habitat as they may damage the native seed bank or disturb other sensitive species. The City will continue to work with the Palos Verdes Peninsula Land Conservancy to close spur trails and enforce spur trail closures and off-trail use.

Throughout this reporting period, OSM Staff continued to install “Warning” signs in the Preserve including the trailhead at Barkentine.



### **Vicente Bluffs Reserve**

	Public Contacts	Education	Warning	Enforcement
Hikers	169	7	6	0
Dog	18	1	0	0
Biker	1	0	1	0

On February 1, Rangers received a call regarding a homeless individual by Golden Cove Trail who was camping on the trail. Rangers contacted the individual and informed them of overnight camping rules in the Preserve and Parks.

On February 5, Rangers observed four chairs, one ottoman, and one glass table off-trail and in the habitat adjacent to Calle Entradero parking lot. It is unknown how long the items had been there; all items had graffiti.

On February 28, Staff received a report of an injured red fox on the beach below Point Vicente Interpretive Center. Rangers confirmed the location and escorted Los Angeles County Animal Control to the site to retrieve the fox.



On March 2, OSM Staff installed several “Do Not Feed the Wildlife” signs along Seascape Trail near Golden Cove Parking Area to educate patrons.



On March 26, Rangers observed vandalism on the restrooms at Pelican Cove parking area. A GPC report was submitted for graffiti removal.



### **Vista del Norte Reserve**

	Public Contacts	Education	Warning	Enforcement
Hikers	1	1	0	0

An ongoing irrigation leak on the top of Vista del Norte Trail has been reported is being resolved.

### **City Parks and Beaches**

Rangers educated patrons in City Parks and beaches regarding the City’s Municipal Code, including homeless individuals and encampments, motorized bicycles, large group gatherings, film and photography without a permit, and park hours.

## MEMORANDUM

**Date:** 7/13/2022

**To:** Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes  
Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

**From:** Senior Park Ranger Taylor Fox

**Subject:** 2<sup>nd</sup> Quarter Rancho Palos Verdes Ranger Enforcement Report

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### PRESERVE VISITOR CONTACTS SUMMARY

April 1 – June 30, 2022

4 Full-time Park Rangers patrolled the Preserve during this period.

1 Part-time Parking Enforcement Rangers patrolled access points, educated patrons, and enforced ParkMobile Implementation on Crenshaw Boulevard.

Total Public Contacts: 8,348

On April 21<sup>st</sup>, Recreation Supervisor Norma Saldaña and Senior Park Ranger Taylor Fox were recognized by the California Recreation and Parks Society for excellence in public service. Supervisor Saldaña was recognized for her work ethic, motivating and educating her staff, and passing on her passion for natural resource protection and education to the public. Senior Fox was recognized for doing an excellent job defining the new Park Ranger Program and establishing roles and procedures to enhance productivity and customer service. Some of these multifaceted responsibilities of a Park Ranger include law enforcement, interpretation, executing trail projects, public education, and, very important public service. Congratulations Norma and Taylor!



### **Agency Coordination, Trainings, and Interpretive Events:**

Coordination Meeting with Palos Verdes Peninsula Land Conservancy (PVPLC)  
(Monthly): City and PVPLC staff meet monthly to coordinate Preserve operations and



maintenance, and to implement the City's Natural Communities Conservation Plan (NCCP/HCP).

Coordination Meeting with Trump National (Monthly): In an effort to review, discuss, and complete maintenance issues in the Ocean Trails Reserve, representatives from the Recreation and Parks Department's Open Space Management (OSM) Division and Community Development Department meet monthly with Trump National Golf Club management staff.

Whale of a Day (April 9): OSM hosted a booth at Whale of a Day to share information about City trails, the Nature Preserve, and local flora and fauna. The booth saw a total of 362 visitors.

Kids to Parks Day (May 21): OSM hosted a booth at Kids to Parks Day and shared information about snake identification and rattlesnake safety while hiking in the Preserve. Public education included a rattlesnake craft.

Animal Behavior Training with Humane Society (May 24): OSM hosted the Humane Society for a training to learn about animal behavior, including aggressive dogs and recognizing signs of heat strokes in dogs.

Girl Scout Troop 3475 (May 25): Rangers met with Rancho Palos Verdes Girl Scout Troop 3475 to practice Leave No Trace Principles and learn about local flora and fauna in the Palos Verdes Nature Preserve.

Los Angeles County-Wide Trails Task Force Quarterly

Meeting (June 2): The City is a member of the Los Angeles County-wide Trails Task Force. Main topics of the meeting included discussion on the California Trails and Greenway Conference, networking opportunities, and a presentation on the Los Angeles County Trails Volunteer Program, among other operational updates shared by attendees.

### **Project Coordination & Emergency Work:**

OSM Staff help to coordinate multiple projects within the Preserve to ensure Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP / HCP) compliance together with the Preserve Habitat Manager, the Palos Verdes Peninsula Land Conservancy (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with PVPLC, the Public Works Department, and public utilities in the second quarter:



Jan 3 – June 7: Burma Road Trail Project. The closed section of the trail reopened after repairs were completed by Bellfree Contractors. Work included adding rock and creating a rock wall to support the existing trail bed.

March 21-April 29: Cal Water water tank maintenance in Portuguese Bend Reserve at Burma/Fire Station Trail

March 28-July 2022: SCE and other utilities undergrounding facilities at Crenshaw Boulevard

March 28 to May 28: Public Works Department led and coordinated fuel modification efforts in various areas within and adjacent to the Preserve with Fire Grazers, Inc. Goats.

April 23: Garden Trail Repair. The trail reopened after several months of temporary closure due to erosion and land movement. Repairs were completed by volunteer trail work.

April 25-29: McGee Survey Consulting. The Public Works Department coordinates bi-annual land surveying within the Preserve to assist with landslide monitoring.

May 13 – May 17 Paintbrush Trail Temporarily Closed (PVPLC): Contractor Vehicle broke down and was blocking the trail.

June 7: Olmsted Trail Grading. No trail closures took place. Repairs were completed by Bellfree Contractors and included grading of a section of the road.

June 13: Small Fire adjacent to lower Portuguese Bend Reserve. OSM coordinated with the LA County Fire Department and SCE on a small fire.

June 26: Fire adjacent to lower Portuguese Bend Reserve. A fire ignited on Peppertree Drive and Sweetbay Road. Adjacent Reserves: Three Sisters, Filiorum, and Portuguese Bend were evacuated and temporarily closed for the remainder of the day. LA County Fire Department extinguished the fire that day and it burned approximately 4 acres. On July 2, fire reported in the same area and quickly extinguished by LAFD.

The following is a list of maintenance projects and events that transpired during the respective Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

Trimming	16
Installing Signs	16
Removal of Graffiti (not including instances where Graffiti was reported / deferred to GPC)	40
	87

General Maintenance

Total

159

**OVERALL VISITOR CONTACTS:**

**Total Contacts: 8,348**

Hikers: 7,053

Dog Walkers: 736

Cyclists: 549

Equestrians: 10

Warnings: 109

**Calls for Assistance: 15 transports**

Heat exhaustion & heat stress: 5

Other (i.e. underlying condition, sprained ankle): 5

Emergency Evacuation (i.e. Fire): 5

**Preserve Information and Reporting Hotline Calls: 43 calls**

Gate Unlocked / Condition: 10

Injured Wildlife: 9

Trail Status and General Information: 5

Animals on the Beach: 3

Maintenance Issue Reported: 3

Homeless Encampments: 3

Trail User Conflict: 2

Motorized Vehicle: 2

Parking Issues: 2

Use of Spur Trail / Closed Areas: 1

Lost / in Distress: 1

Tents in Parks: 1

Fire / Grills in Parks: 1

**Social Media Educational Outreach**

OSM Staff proactively searches social media sites for group gatherings scheduled within the Preserve to educate visitors on Preserve rules, and group size restrictions. Groups over twenty participants are not allowed in the Preserve for the purpose of natural resource protection. Over the last quarter, OSM Staff contacted 11 groups to monitor activity planned for the Preserve and to proactively provide information on Preserve regulations.

**ENFORCEMENT SUMMARY:**

**Parking Citations Issued: 477**

By Violation:

Park by Permit – 435  
Parking Lot / Preserve / Park Hours- 12  
Posted Temporary No Parking / Fire Lane – 22  
Handicap Zone –8  
Other- 31

By Location:

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) – 268  
Del Cerro Park – 185  
Abalone Cove Reserve – 15  
Forrestal Reserve – 2  
Vicente Bluffs Reserve –0  
Other Parks – 2

**Notice to Appear Citations Issued: 11 Total**

By Violation:

Closed Area – 4  
Possession / Consumption of Alcohol – 2  
Motorized Vehicles – 3  
Photography without a Permit - 2

By Location:

Abalone Cove Reserve – 5  
Portuguese Bend Reserve – 3  
Vicente Bluffs Reserve – 1  
Ladera Linda Park - 2

**ACTIVITY REPORT BY RESERVE:**

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

**Abalone Cove Reserve:**

	Public Contact	Education	Warning	Enforcement
Hikers	624	72	19	6
Dogs	18	1	3	0



On April 4, Rangers received a report of evidence of fire (charred wood), on the beach, between Altamira Canyon and Olmsted Trail junction. Additionally, on April 7, Staff located the charred remains of a black composition book in Altamira Canyon.

On April 7, Rangers received a report of two individuals riding a Onewheel device. The individuals were seen on Beach School Trail and had been advised by OSM staff several times. Rangers were unable to verify the use of such devices upon arrival, and continue to monitor for the activity.

On April 13, Rangers observed an electric skateboard device on Beach School Trail, and had also been advised by OSM staff a few minutes prior. Rangers were able to make contact and educated the individual on the Reserve property and prohibitions of such use.

On April 22, OSM Staff installed two “No Feeding Wildlife” signs at the 30-minute parking lot located near Abalone Cove. Staff continues to observe the public feeding wildlife, including squirrels and pelicans. Staff will continue to monitor the area to educate visitors to respect wildlife and refrain from feeding them.

On April 24, Rangers contacted two individuals with an open container and consumption of alcoholic beverages at Abalone Cove Beach. The individuals were advised that alcohol is not permitted on City Parks or Preserve, including the beach and trails. Both individuals were issued a citation.



On April 29, OSM Staff was informed of an injured great horned owl. A patron had found the bird by the beach. The owl had likely fallen from a nest above and had sustained several injuries. It had also been attacked by crows, resulting in additional injuries. Staff coordinated the drop-off of the owl for medical treatment and rehabilitation.



On May 6, Staff was notified of a lost person. The individuals' father reported their family member could not be located. The individual had a history of epilepsy. Los Angeles County Sheriff Deputies were notified while OSM Staff patrolled the Reserve. Rangers were able to locate the individual in Portuguese Bend Reserve shortly after with no injuries.

A vehicle crashed into the Abalone Cove restoration area on May 14. There was some damage to habitat and irrigation.



On May 15, two rabbits were abandoned at Abalone Cove and reported by the public to Staff. The rabbits were kept safe until a new home could be located for them. It is against the law to abandon animals in City parks, the Preserve, beaches, and other recreational areas within the City of Rancho Palos Verdes.



On May 18, Staff received a report of a patron who, while at Sacred Cove Beach, had his wallet stolen after leaving his belongings unattended. The individual was advised to call the Los Angeles County sheriff Department to report the incident and file a report.

On May 25, an irrigation leak was reported on Chapel View Trail near the Beach School Trail junction. The water was shut off, and OSM Staff notified PVPLC to assess potential damage and repairs to the habitat.



Bellfree Contractors began grading a section of Olmstead Trail on June 7 that has fallen into disrepair due to water erosion. No trail closures took place, and work was completed by the end of the day.

In June, Rangers observed still photography without a permit at Sacred Cove Beach. The individuals were contacted regarding the restrictions, pertaining to the City's Ordinance Chapter 9.16 still photography, motion picture and television productions.

On June 1, Staff received a report of a distressed seal. Staff contacted Marine Animal Rescue to determine next steps, and ensured the public maintained a safe distance. The seal was able to swim on its own back to the ocean without assistance.

On June 29, OSM Staff dug out and re-installed a signpost that had been found near Palos Verdes Drive South and Sacred Cove View West Trail. It is unknown when or how the sign had been removed from its initial location.



### **Aqua Amarga Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	10	4	0	0
Dog	2	0	0	0

No activity was reported during this reporting period.

### **Alta Vicente Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	12	5	2	0
Dog	4	1	2	0

On April 30, 2022 Rangers received a report of an injured owl whose cries could be heard by local bird watchers in the area. Rangers located the bird and confirmed with Los Angeles County Animal Control that the bird did not have any visible injuries. It is believed the bird was a fledgling, and no further action was needed. The bird was not seen or heard of the next day.



### **Filiorum Reserve**



	Public Contacts	Education	Warnings	Enforcement
Hikers	45	5	2	0
Dog	3	1	2	0
Biker	1	0	1	0
Equestrian	6	0	0	0

During the months of April and May, Staff received several reports from concerned members of the public hearing the sound of cats while hiking. Many believed the cats had been abandoned in the trails. Staff has educated and confirmed the presence of California gnatcatchers, whose distinctive calls may be mistaken for the sound of a cat's meow. Individuals can visit and use the Merlin Bird ID from the Cornell Lab using both photo and audio to identify birds while hiking in the Preserve by visiting: <https://www.birds.cornell.edu/home/>. California gnatcatchers are identified by the US Fish and Wildlife Service as a threatened species, and they are protected and targeted for preservation within the Preserve.

On April 16, the Los Angeles County Sheriff Department was on scene at Rattlesnake Trail responding to a call about an unconscious hiker. Rangers assisted with securing the scene and directing additional units as they arrived to assist.



*Los Angeles County Sheriff Department, Fire Department, EMT, and Rangers walking up Rattlesnake Trail.*

In May, Rangers found evidence of unauthorized mowing within the lower section of Filiorum Reserve and Portuguese Bend Reserve. The mowing included mustard and other grasses that had not been completed or approved by the City, or a City partner.

On May 29, Rangers received a report from both a bicyclist and hiker regarding a conflict on the trail. Per the hiker, the bicyclist was riding the bicycle on a designated walk your bike zone when they encountered several hikers on a narrow portion of Zote's Cutacross Trail. The hiker then grabbed the bicyclist, while mounted. Neither party

sustained injuries. Rangers were able to record the events from each reporting party. Neither individual wanted to press charges.

On June 21, the Eucalyptus Trail was temporarily closed due to a downed tree. The City is working with the Arborist and Public Works Department to assess the situation and reopen the trail.



### **Forrestal Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	792	114	2	0
Dog	144	12	3	0
Biker	49	3	0	0

Park Rangers have been assisting with the management of the Forrestal Reserve Parking Area, which opened to the public in late March, at the commencement of the Ladera Linda Community Park Project. While the park is under construction, Preserve parking is provided along Forrestal Drive, behind the Forrestal gate weekends and

holidays from 7 a.m. to one hour after sunset. Park Rangers are coordinating with City Departments and LA County Sheriff's Department to educate and enforce the parking area. During this quarter, approximately 2,237 vehicles parked on Forrestal Drive during operating hours.

On April 16, Rangers observed two bikes, one gas powered dirt bike and an e-bike heading south away from Main Sail Drive. Deputies were also in the area and were conducting a patrol when they observed the bicycles gain speed to exit the area. The riders were educated on their excessive speed and on the fact that motorized vehicles are not allowed in the Preserve.

On April 23, Rangers were notified of an injured patron with a possible leg injury. The individual stated they were riding a bicycle on the trails and had fallen. Several bystanders provided assistance to escort the injured individual to his vehicle. Additional medical assistance was denied.

On May 2, OSM Staff observed vandalism on the construction banners at Ladera Linda Community Park and damage to a wooden post on Forrestal Drive. The incident was reported to Los Angeles County Sheriff's Department, and both the banner and post were replaced/repainted.



On May 8, several carsonite signs and wooden posts were defaced with graffiti along the trail system. The public is encouraged to report graffiti for removal via the MYRPV App.



*Purple text on carsonite and wooden post found on the trails in Forrestal Reserve.*

On June 7, Rangers received reports of a distressed racoon. The racoon was a juvenile, located near the Pirate trailhead. Members of the public were advised to use caution and maintain distance to allow the mother to return and retrieve its young. Animal control was also notified and advised no further action would be taken at this time, as the animal was not injured.



During the week of June 15, new signage was installed on the gates at Forrestal for vehicles that may be locked in after hours. The Preserve Information and Reporting Hotline (310) 491-5775 can also be called from dawn to dusk.





On June 18, So Cal Edison responded to a report from a member of the public of a leak in on their equipment located on Forrestal Drive. Edison was able to conduct repairs and performed a transformer transfer. There were no impacts to public parking.

### **Ocean Trails Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	62	32	2	0
Dog	46	15	15	0
Biker	0	0	0	0

During this reporting period, OSM Staff continued to coordinate closures at Coastal Switchback Trail and the Bridge near Lakeview Trail.

Rangers have continued to patrol the beaches at Ocean Trails Reserve to monitor dogs off-leash and dogs on the beach. Trump National Golf Club Staff and Los Angeles County Fire Department Lifeguards have assisted in the maintenance of signage and education. Staff has seen a decrease in the number of violations observed and reported during this reporting period.

On April 7, Rangers were notified of a dead seal on the beach at the bottom of Southshore Coastal Trail. The seal was reported to the Marine Mammal Stranding Network for removal.

On April 18, Rangers were notified of a deceased coyote near Ocean Trails Reserve, along a section of the California Coastal Trail. Rangers were able to coordinate with the respective agency for pick-up.

On May 4, Park Rangers were notified by Trump National Golf Club Staff of a paraglider at Founders Park. Rangers were able to make contact with the individual and informed them of the City's Municipal Code 12.16.045 related to the prohibition of take-offs and landings within the City, including Parks, Preserve, and Beach areas.



*Paraglider seen from the Founder's Park parking lot.*

During the Memorial Day weekend, Rangers patrolled Ocean Trails Beach and Rancho Palos Verdes Beach to monitor usage. Seasonal lifeguards were posted at Rancho Palos Verdes Beach below Sunset Trail to monitor beach activity and water safety.

On June 12, Rangers removed a temporary shelter erected from palm fronds, acacia, and wooden posts found on Rancho Palos Verdes Beach.



### **Portuguese Bend Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	5,390	368	12	1
Dog	507	64	24	0
Biker	499	22	16	2
Equestrian	4	4	1	0

On April 12, Rangers were notified of a water leak from CalWater infrastructure on the upper section of Vanderlip Trail. The trail was closed while water was shut off, and crews could inspect trail conditions. OSM Staff conducted some trail work on April 13 to fill in the rutted sections, and the trail was reopened by the end of the day.



*Water flowing onto Vanderlip Trail resulting in rutting on the trailbed prior to it depositing on the adjacent habitat. The picture on the right was taken after trail work was completed to reshape the grade dip and fill in ruts.*

On April 17, Rangers received a call regarding a deceased coyote in Portuguese Bend Reserve. Rangers informed both the City's Code Enforcement and Los Angeles County Animal Control..

During the week of April 27, Rangers observed and coordinated with Cal Water on a water leak at the water tank located on Burma Road Trail. This was part of the Seismic Retrofit project, however, the flow of water was greater than anticipated. Water was diverted by an existing grade dip, and an additional trench was built to minimize damage to Ishibashi Trail and Burma Road Trail. During this time, A-frames were set-up and vehicles were kept off the trail to minimize damage. Equestrian, bicyclists, and hikers were permitted to walk through the area.





*Water flowing down Burma Road Trail and three a-frames placed to notify the public of muddy conditions.*

On April 23, Volunteers, with support from OSM Staff, repaired Garden Trail, making it possible to reopen this trail for public use. Fissures, likely caused by land movement, were filled in, adjacent lemonade berry bushes were trimmed, and the trail was manicured. Closure signage was removed, and Staff will continue to monitor the trail for erosion in the future.



*Volunteers are seen above on the left using fill dirt and compacting the trail. Picture on the right depicts the condition of the trail after work was completed.*

On April 24, Recreation and Parks Staff notified Rangers of two motorized dirt bikes that had entered the Preserve via Forrestal Drive. Rangers were able to make contact and educate the riders on no motorized use in the Preserve. Both riders were issued a citation and asked to walk their dirt bike toward Burma Road Trail, as this was the shortest distance to exit the Preserve.





*One of the dirt bikes is pictured above, a Honda 50r.*

On May 6, the temporary wooden post and cable installed at the Burma Road trailhead was damaged by a vehicle collision. A police report was submitted, and the debris was retrieved by OSM Staff. A-frames have been placed in the interim. With the assistance of the Public Works Department, the temporary cable at Burma Road Trail was secured after the installation of a wooden post during the week of June 22.



*Pictures above were taken at Burma Road trailhead on March 28 during a rain closure (top) and on May 6 after a vehicle damaged the middle post that secured the temporary cable.*

On May 13, a contractor's vehicle that was part of the acacia removal project taking place on Paintbrush and Ishibashi trails broke down. The vehicle was left in place over the weekend and was removed on May 16. The Paintbrush Trail was closed during that time.



On May 14, two ParkMobile reservation signs were vandalized on Crenshaw Boulevard. The signs have been replaced.

On May 26, Rangers and PVPLC staff observed a new rut that had emerged on Burma Road Trail past Toyon Trail junction. Several cones were placed to advise the public to use caution. The City will coordinate with contractors to assess and fill in the rut. On June 9, Staff observed that the camera notice sign placed at Burma Road Trail had been vandalized. The sign was repaired, reinforced, and placed higher on its metal post to deter vandalism.



On June 10, Staff reset two A-frames located near Burma Road Trail to educate the public and deter the creation of spur trails.





On June 13, Rangers received a report of a small fire adjacent to the Portuguese Bend Reserve boundary. The small fire burned cacti located by Palos Verdes Drive South in the Gateway area before being extinguished. The incident is under investigation.



On June 13, Rangers received a call from the Los Angeles County Sheriff's Department at 8:30 p.m. regarding a vehicle in the Reserve. Rangers responded and confirmed the presence of an unauthorized vehicle driving down Burma Road Trail. The driver was cited and escorted out of the Reserve.

On June 16, Staff conducted repairs on a section of the Klondike Canyon Trail. No trail closures were required while the work was completed.



On June 23, a moped was seen exiting Burma Road Trail in the evening. The access point and time of entry are unknown. Motorized vehicles are prohibited in the Palos Verdes Nature Preserve. This includes electric bicycles, powered unicycles, motorized bicycles, and mopeds. The City will work closely with PVPLC to identify any habitat impacts, as a result of such use.

On June 26, a vegetation fire was reported on private property near Palos Verdes Drive South and Peppertree Drive. Portuguese Bend, Filiorum, and Three Sisters Reserves were temporarily closed as a precaution, and signage was placed at trailheads. The approximately 4-acre fire was extinguished later that day, and Reserves reopened on June 27. On July 2, the fire had reignited by debris that had smoldered and lit up. Los Angeles County Fire Department was on scene and was able to quickly extinguish it with minimal damage.

### **San Ramon Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	1	0	0	0
Dog	0	0	0	0

During the week of April 6, Staff installed three fiberglass posts with trail signage at the intersection of Palos Verdes Drive South and Palos Verdes Drive East to direct the public on adjacent trail routes in anticipation of additional foot traffic as a result of the traffic signal.

### **Three Sisters Reserve**

Public Contacts	Education	Warnings	Enforcement
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Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0

No activity was reported during this reporting period.

### **Vicente Bluffs Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	116	9	3	1
Dog	12	0	0	0
Biker	0	0	0	0

Throughout this reporting period, bicycles were reported to Rangers within this Reserve. Bicycles are not allowed on trails within Vicente Bluffs Reserve. Park Rangers continue to monitor for this activity.

On Saturday, April 9, Rangers reported several instances of graffiti on the restroom facility, trash can, and walkway areas at Pelican Cove parking area. The restroom, A GPC report was submitted and pictures were taken to document the vandalism.



On April 25, Rangers observed and contacted a crew working in a section of habitat located in Vicente Bluffs Reserve. The crew had been authorized and granted access to remove invasive acacia; however, they had performed outside of their approved work area. Work was halted as they had damaged habitat. The Palos Verdes Peninsula Land

Conservancy was notified and will be conducting a bird nesting survey in addition to calculating habitat loss.



*Bobcat and chipper were used to remove invasive acacia trees near Vicente Bluffs.*

### **Vista del Norte Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	1	0	0	0

An ongoing irrigation leak on the top of Vista del Norte Trail had been reported and was resolved With the assistance of Public Works Department.

### **City Parks and Beaches**

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including homeless individuals and encampments, unauthorized tents and canopies, filming and photography without a permit, and unauthorized fire and bbq grills.

## MEMORANDUM

**Date:** 11/2/2022

**To:** Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes  
Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

**From:** Senior Park Ranger Taylor Fox

**Subject:** 3<sup>rd</sup> Quarter Rancho Palos Verdes Ranger Enforcement Report

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### PRESERVE VISITOR CONTACTS SUMMARY

July 1 – September 30, 2022

4 Full-time Park Rangers patrolled the Preserve during this period.

2 Part-time Parking Enforcement Rangers patrolled access points, educated patrons, enforced, and educated the public on ParkMobile Implementation on Crenshaw Boulevard.

#### **Welcome Park Ranger Haynes and Rangel!**

Park Ranger Haynes and Rangel joined the Open Space Management Team as Parking Enforcement. They will educate patrons about parking issues related to the implementation of the ParkMobile parking system on Crenshaw Boulevard and Park Place. Haynes has previous experience in education, and Rangel has previous experience in the public sector.



## **Agency Coordination, Trainings, and Interpretive Events:**

Coordination Meeting with Palos Verdes Peninsula Land Conservancy (PVPLC) (Monthly): City and PVPLC staff meet monthly to coordinate Preserve operations and maintenance, and to implement the City's Natural Communities Conservation Plan (NCCP/HCP).

Coordination Meeting with Trump National (Monthly): In an effort to review, discuss, and complete maintenance issues in the Ocean Trails Reserve, representatives from the Recreation and Parks Department's Open Space Management (OSM) Division and Community Development Department meet monthly with Trump National Golf Club management staff.

4<sup>th</sup> of July Event (July 4): OSM participated in the City's 4<sup>th</sup> of July Celebration held at Civic Center. A total of 364 participants visited the OSM booth to learn more about trails and wildlife, and to take photos with Smokey the Bear!



World Ranger Day (August 3): Recreation Supervisor Saldana and Senior Park Ranger Fox attended and represented the City of Rancho Palos Verdes Park Rangers in celebrating and recognizing World Ranger Day with colleagues throughout Southern California.





Eagle Scout Project: Davis Stern (August 6): Scout Davis Stern from Troop 378 completed his Eagle scout project at North Spur Trail in the Alta Vicente Reserve. Mr. Stern led a group of scouts installing a 20ft long and 13inch diameter culvert pipe underneath North Spur Trail to assist with water control and mitigation. He also reset up 17 timber steps and installed 3 additional steps on North Spur Trail.

Eagle Scout Project: Aaron Chee (August 20): Scout Aaron Chee from Troop 378 completed his Eagle scout project at the Abalone Cove parking turnout. Mr. Chee led a group of scouts installing a fence along the Palos Verdes Peninsula Land Conservancy restoration area. Mr. Chee was able to install 19 5ft tall vertical posts and 10 horizontal posts that were 8ft long to match the existing fencing.

Eagle Scout Project: Ethan Chao (August 27): Ethan Chao from Troop 378 completed his Eagle scout project At Abalone Cove Park. Mr. Chao led a group of scouts building 6 picnic tables, and painting them with primer and brown paint. He also delineated 200ft of walking pathways park side with rock.

Los Angeles County-Wide Trails Task Force Quarterly Meeting (September 8): The City is a member of the Los Angeles County-wide Trails Task Force. Main topics of the meeting included discussion on Countywide Parks Needs Assessment Plus, and an agency spotlight on Puente Hills Habitat Conservation Authority among other operational updates shared by attendees.

Rattlesnake Safety Training and Handling (September 22): OSM hosted the Central Coast Snake Services for a hands-on training on rattlesnakes, teaching staff about

behaviors, safety guidelines, and relocation guidelines. Senior Park Ranger Fox, pictured on the right, is practicing using snake tongs to gently lift the rattlesnake from the ground to the bucket for relocation, while maintaining a safe distance.



### **Project Coordination & Emergency Work:**

OSM Staff help to coordinate multiple projects within the Preserve to ensure Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP / HCP) compliance together with the Preserve Habitat Manager, the Palos Verdes Peninsula Land Conservancy (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with PVPLC, the Public Works Department, and public utilities in the third quarter:

September 1: SCE Contractor performing utility infrastructure maintenance on Portuguese Bend Reserve. No trails were closed.

September 6-21: City and PVPLC coordinated with contractor on installation of Phase IV Preserve Monument signs, which included a total of 12 new signs at Vista del Norte, Forrestal Reserve, and Ocean Trails Reserve.

The following is a list of maintenance projects and events that transpired during the respective Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

Trimming: 14  
Installing Signs: 19  
Removal of Graffiti (not including instances where Graffiti was reported / deferred to GPC): 13  
General Maintenance: 155  
Total: 204

### **OVERALL VISITOR CONTACTS:**

#### **Total Contacts: 7,768**

Hikers: 6372  
Dog Walkers: 670  
Cyclists: 620  
Equestrians: 106

Warnings: 101

Education: 733

**Calls for Assistance: transports 14**

Heat exhaustion & heat stress: 5

Other (i.e. underlying condition, sprained ankle): 9

**Preserve Information and Reporting Hotline Calls: 33 calls**

Parking Issues: 10

Animals off Leash: 4

Maintenance Issue Reported: 3

Motorized Vehicle: 3

Homeless Encampments: 2

Hiker in Distress: 2

Trail Status and General Information: 2

Gate Unlocked / Condition: 1

Injured Wildlife: 1

Illegal Trimming of Flora: 1

Lost / Found: 1

Use of Spur Trail / Closed Areas: 1

Illegal Dumping: 1

Fishing: 1

**Social Media Educational Outreach**

OSM Staff proactively searches social media sites for group gatherings scheduled within the Preserve to educate visitors on Preserve rules, and group size restrictions. Groups over twenty participants are not allowed in the Preserve for the purpose of natural resource protection. Over the last quarter, OSM Staff contacted 13 groups to monitor activity planned for the Preserve and to proactively provide information on Preserve regulations.

**ENFORCEMENT SUMMARY:**

**Parking Citations Issued: 322**

By Violation:

Park by Permit – 290

Parking Lot / Preserve / Park Hours- 2

Posted Temporary No Parking / Fire Lane – 23

Handicap Zone – 7

Other- 21

By Location:

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) –173

Del Cerro Park – 120  
Abalone Cove Reserve – 21  
Forrestal Reserve – 8

**Notice to Appear Citations Issued: 4**

By Violation:

Closed Area – 1  
Animals on the Beach – 3

By Location:

Abalone Cove Reserve – 1  
Ocean Trails Reserve – 3

**ACTIVITY REPORT BY RESERVE:**

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

**Abalone Cove Reserve:**

	Public Contact	Education	Warning	Enforcement
Hikers	591	91	22	1
Dogs	28	12	12	0
Bicyclist	1	0	0	0

On July 10, Los Angeles County Fire Department responded to a call of an injured hiker at the beach below Bow and Arrow Trail. The individual had to be transported by helicopter to a hospital.





On July 24, Staff received a report of a grill at Sacred Cove Beach. Rangers responded and saw a small group of people with a portable grill and propane tank. Staff educated the group on prohibitions on bringing in outside grills and then escorted them out of the Preserve.



On August 14, Rangers contacted two individuals who had collected rocks from the beach at Abalone Cove. The individuals were informed that this was a violation and they returned the rocks.

On August 16, Staff replaced an "Area Closed" sign that had been vandalized on Inspiration Point Trail. The protective coating had been scratched off resulting in peeling of the text underneath. The sign was replaced to ensure the text remained legible to advise the public to stay on designated trails.



On August 19, Abalone Cove staff encountered a seagull with a possible broken wing while on patrol at Sacred Cove Beach. Staff contacted International Bird Rescue and the seagull was dropped off for treatment and rehabilitation.

On August 20 and 21, Scout Aaron Chee, from Troop 378, worked with the City of Rancho Palos Verdes Recreation and Parks Department to complete his Eagle Scout Project. The project included the extension of the wooden fence near the 30-minute turnout at Abalone Cove Park / Reserve. Vertical posts were installed along 100 feet of the existing fence line. The benefit of extending this fence line is that it will help keep the public from trampling vegetation in a closed area.



On August 27, Scout Ethan Choi, from Troop 378, worked with the City of Rancho Palos Verdes Recreation and Parks Department to complete his Eagle Scout Project. The

project included the assembly and painting of 6 picnic tables to be added to park and delineating the nearby trails.

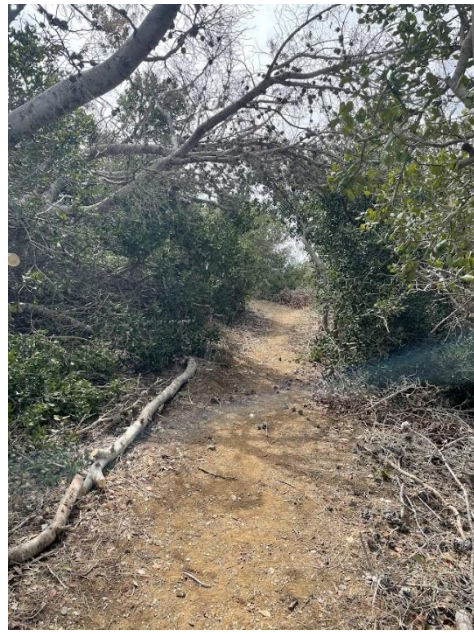


On September 9, one of two binoculars was stolen from the parkside. A police report was submitted.



On September 16, Staff received a report of a fallen branch on Smuggler's Trail. The branches were trimmed back and the pathway was cleared.





On September 17, Abalone Cove hosted Coastal Clean-up Day, with over 180 volunteers, and approximately 300 pounds of trash collected, the event was a success!

On September 17, Staff was notified of an injured seagull on the beach on Abalone Cove Beach. Rangers assisted in retrieval and dropped off the bird to International Bird Rescue for medical care.

On September 19, Staff identified damage to several barriers placed on the perimeter of the parking lot. There were no visible tire marks or damage to the habitat. The barriers were reset (right).





Throughout the week of September 19-26, Staff inspected and repaired ruts caused by an outside contractor's vehicle driving in muddy conditions caused by light rains on Portuguese Point Loop trail.



On September 18, Staff identified a “Caution Unstable Cliffs” sign in poor condition (left) at Sacred Cove Beach. The sign was no longer legible and had an exposed base. The sign was removed and replaced on September 26 (right).



### **Aqua Amarga Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	4	0	0	0
Dog	2	0	0	0

No activity was reported during this reporting period.

### **Alta Vicente Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	7	3	0	0
Dog	4	2	1	0

On July 19, OSM removed a couch from Alta Vicente Reserve.



On July 21, Rangers received a report of a damaged irrigation line resulting in water leaking out. PVPLC was notified and the water was shut off until repairs could be made. There was no impact to the trail.

On August 13-14, Rangers observed and contacted several drone operators who were not following the City's established drone policies. Following those discussions, the individuals stopped flying their drones.

### **Filiorum Reserve**

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	376,361	75	20	0	0
Dog	NA	6	5	1	0



Biker	9,669	1	0	0	0
Equestrian	366	0	0	0	0

West Coast Arborists were on site on August 2 to cut the Eucalyptus tree that had uprooted, prompting a temporary closure of the trail. The trail has reopened as of August 2.



On August 28, Rangers found 2 plastic chairs in the right of way on McBride Trail overlooking Filiorum and Three Sisters Reserve.



### **Forrestal Reserve**

Trail  
Counter

Public  
Contacts

Education

Warnings

Enforcement

Hikers	231,518	585	62	10	0
Dog	NA	144	5	8	0
Biker	5,851	52	9	0	0

Park Rangers have been assisting with the management of the Forrestral Reserve Parking Area, which opened to the public in late March, at the commencement of the Ladera Linda Community Park Project. While the park is under construction, Preserve parking is provided along Forrestral Drive, behind the Forrestral gate weekends and holidays from 7 a.m. to one hour after sunset. Park Rangers are coordinating with City Departments and LA County Sheriff's Department to educate and enforce the parking area. During this quarter, approximately 1,440 vehicles parked on Forrestral Drive during operating hours.

On July 14, Staff installed several additional trash cans by trailheads along Forrestral Drive and the Forrestral Reserve. The trash can pictured below is located at Pirate Trail.



On July 30, a hiker reported running water on Forrestral Drive. Staff notified Cal Water to shut off the water, and the property owner was notified to make repairs that are needed.





On August 2, Rangers received a hotline call regarding an individual climbing over the chain link fence to access the Lower Ladera Linda Field. Rangers arrived and contacted 3 separate parties and advised them of rules relating to use of fields.

On August 28, Park Rangers observed and contacted 2 individuals prospecting and removing rock material from the hillside adjacent to Forrestal Drive. The individuals were compliant, educated, and returned all items to the Reserve.

During the week of September 14, contractors completed the installation of a new Preserve monument sign at Pirate Trail. The installation was part of Phase IV of the Preserve signage plan.



On September 21, Rangers received a report of a downed portable restroom, located on Forrestal Drive. Public Works Department assisted with contacting the contractor and the unit was righted by the end of the day.



On September 26, Staff received a report of barriers placed on Exultant trail. Rangers removed the rocks and wooden post deposited across the trail. There was also damage caused by etching to a nearby “No Bicycles Permitted” sign.



### **Ocean Trails Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	656	158	2	0
Dog	75	22	11	3
Biker	1	20	0	0

During this reporting period, OSM Staff continued to coordinate closures at Coastal Switchback Trail and the Bridge near Lakeview Trail.



Rangers have continued to patrol the beaches at Ocean Trails Reserve to monitor dogs off-leash and dogs on the beach. Trump National Golf Club Staff and Los Angeles County Fire Department Lifeguards have assisted in the maintenance of signage and education. Staff has seen a decrease in the number of violations observed and reported.

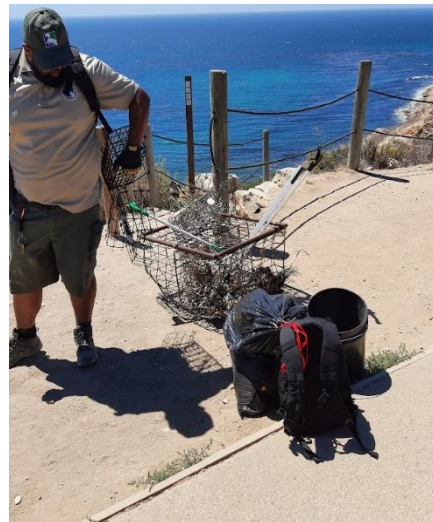
On July 2, Staff received several reports of an injured seal. Park Rangers later confirmed that a group of beach visitors had assisted the seal back to the ocean, but could not confirm if it was injured. Seals are protected by both state and federal laws, and it is illegal to approach or touch them. It is recommended that the public always remain 150 feet away.

On July 7, Trump National Golf Club staff reported 2 domesticated rabbits on their property. Los Angeles County Animal Control was notified and the rabbits were removed. No other information was provided. Per the City's Municipal Code 12.16.150 RPVMC, it is unlawful to willfully abandon any animal on any city-owned property.

On July 17, Rangers received a report of a Trail Closed A-frame on Dudleya Trail. Rangers confirmed the trail was open, and no closures had taken place at this location. The A-frame was removed shortly after receiving the report from the public.

On August 29, OSM staff observed a dirt biker riding on Burma Road Trail going down Ishibashi Trail. The dirt biker could not be located again to make contact. The City also received 2 calls from the public reporting the rider on Watertank Trail. Park Rangers are actively monitoring for these violations.

On August 30, OSM staff removed a sleeping bag and 3 empty lobster traps found along the beach. All items were hauled out from the trails and discarded in an appropriate receptacle.



Contractors completed the installation of 10 new monument signs in Ocean Trails Reserve. The installation was part of Phase IV of the Preserve signage plan.



On September 25, Rangers received a report of a deceased pinniped on Rancho Palos Verdes Beach. The West Coast Marine Mammal Stranding Network was notified.

### **Portuguese Bend Reserve**

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	899,740	4,850	416	3	0
Dog	NA	456	44	27	0
Biker	79,697	563	35	11	0
Equestrian	NA	106	4	2	0

On July 2, a vegetation fire was reported in the same area as a previous fire on June 26. The debris had apparently reignited and began generating smoke. Los Angeles County Fire Department arrived and extinguished the fire.

On July 18, a geocache was found within the Reserve. Per the City's Public Use Master Plan (PUMP), geocaches are permitted on a limited basis as long as they take place on designated trails and do not impact sensitive habitat and wildlife. Geocaches placed off-designated trails or in sensitive areas are not allowed, and are subject to City fines.





On August 18, two females were seen entering Burma Road Trail after hours, carrying a 5 gallon bucket and unknown contents. They were then seen exiting a few minutes after.

On August 19, Stay Green crews were on Burma Road Trail conducting fuel modification in coordination with the Public Works Department. No closures took place.

On August 28, Rangers identified and reported a water leak originating from public property, adjacent to lower section of Portuguese Bend Reserve. Public Works Department was notified and assisted with contacting the respective party for repairs.



On September 1, Southern California Edison was on site conducting utility infrastructure maintenance on several locations along Burma Road Trail. No trail closures took place.



### **San Ramon Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0

On July 28, Staff observed a tree planted within the habitat. The tree was removed, and PVPLC was notified.



On August 25, OSM staff observed 3 abandoned tools along the creek bed near Wanderer Trail. The tools, including 2 narrow shovels and 1 rock pry bar, were



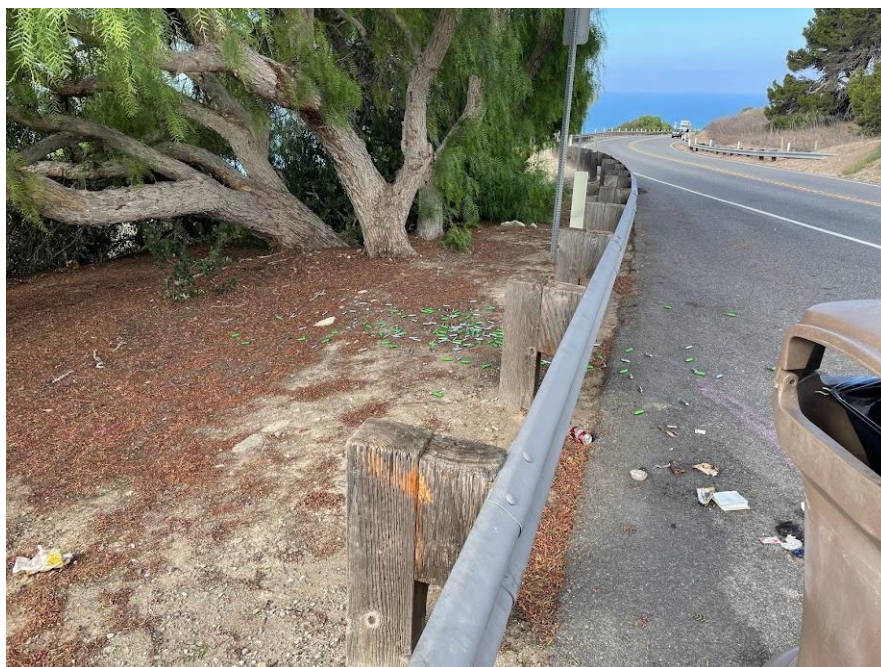
removed. There was no evidence of digging, moving, or building of any structures in the immediate vicinity.

On September 2, Park Rangers were informed of two dirt bikes in the Reserve, entering from 25th Street in San Pedro. Park Rangers later observed the two same riders at the East Boundary and Sagebrush Walk Trails. Park Rangers were unable to contact the individuals before they exited the Preserve. Motorized vehicles are not permitted in the trails, and the public is encouraged to report these sightings to the Park Rangers at (310) 491-5775.

On September 6, Rangers submitted a GPC report for removal of graffiti on chevron signs and metal guard railings at the turnouts on Palos Verdes Drive East.



On September 14 and 16, Rangers conducted liter abatement along the habitat adjacent to vehicle turnouts on Palos Verdes Drive East. Rangers found and discarded 200 Whip It canisters, 50 glass bottles, 1 metal chair, and other items including food wrappers, and unidentified metal objects.



### **Three Sisters Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	5	2	0	0
Dog	0	0	0	0
Biker	0	0	0	0

On July 18, Rangers identified illegal trimming and access into the Reserve. The tops of yuccas had been trimmed without the City's authorization.



On August 28, Los Angeles County Fire Department were called to assist an injured patron on the trails. The individual was escorted and provided medical care.

### **Vicente Bluffs Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	254	18	1	0
Dog	30	2	0	0
Biker	3	3	3	0

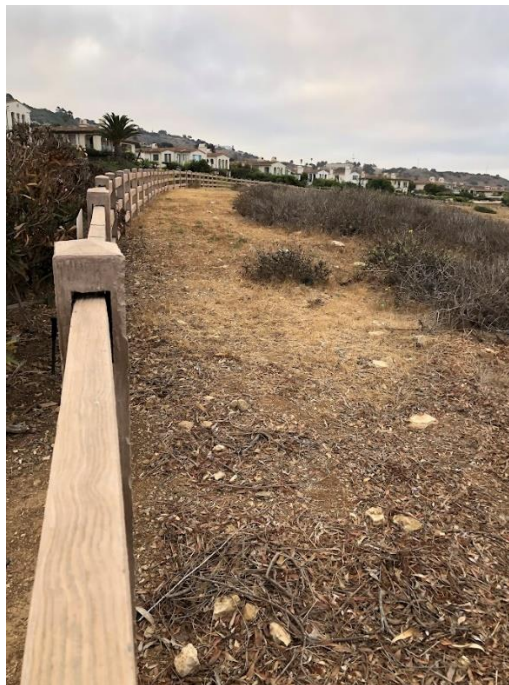
On July 10, Rangers received a report of a motorcycle riding on Terrace Trail. Rangers were unable to locate the rider. All trails within Vicente Bluffs Reserve are designated as pedestrian only. Bicyclists, motorcycles, and other motorized vehicles are prohibited.

On July 19, OSM staff removed graffiti on a portable restroom adjacent to Calle Entradero Parking Lot.





On August 4, Staff installed three “Do Not Climb Over Railing / Area Closed” signs on the blufftop fence at Vicente Bluffs Reserve near post 660. Non-native Acacia bush was recently removed from the area.



On August 28, PVIC staff informed Park Rangers of individuals barbecuing on the trails. Park Rangers arrived to the reported location, however the violators were no longer in the area.

### **Vista del Norte Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	1	0	0	0

On September 19, contractors completed the installation of the Vista del Norte regulatory sign as part of Phase IV of the Preserve signage plan. The sign had been previously damaged by a vehicle in September 2020.



*2020 damage to sign*



*New Vista Del Norte Reserve sign*

### **City Parks and Beaches**

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including homeless individuals and encampments, unauthorized tents and canopies, and unauthorized fire and bbq grills.

## MEMORANDUM

**Date:** January 7, 2023  
**To:** Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes  
Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes  
**From:** Taylor Fox, Senior Park Ranger  
**Subject:** 4<sup>th</sup> Quarter Rancho Palos Verdes Park Ranger Enforcement Report

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### **PRESERVE VISITOR CONTACTS SUMMARY**

October 1 – December 31, 2022

4 Full-time Park Rangers patrolled the Preserve approximately 1,560 hours during this period.

#### **Agency Coordination, Trainings, and Interpretive Events:**

Los Angeles Countywide Trail Managers Task Force Meeting (Dec. 1): Open Space Management (OSM) Staff attended this quarterly meeting with fellow L.A. County land managers to coordinate on emergent issues and share best management practices.

3 Monthly City-PVPLC NCCP/HCP Coordination Meetings: City and PVPLC staff meet monthly to coordinate Palos Verdes Nature Preserve (Preserve) operations and maintenance, and to implement the City's Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

1 Monthly City-PVPLC Volunteer Trail Crew Coordination Meetings: The City's OSM Staff has begun monthly meetings with the Volunteer Trail Crew to coordinate future trail maintenance and building projects.

3 Monthly City-PVPLC Volunteer Trail Watch Coordination Meetings: The City's OSM Staff holds monthly meetings with the Volunteer Trail Watch to coordinate on public use and public education topics.

Los Angeles Water Waterkeeper (December 16): Park Rangers ride along by boat with the Los Angeles Waterkeeper Ride to coordinate operations and learn more about Marine Protected Areas off the City's coast.

Los Angeles County Vector Control (December 20): OSM hosted the Los Angeles County West Vector & Vector Borne Disease Control District for a virtual training on



identification, symptoms, treatments, and preventative measures among four common vectors in RPV.

Eagle Scout Project Shubham Waldiya (October 22): Scout Shubham Waldiya from Troop 378 completed his Eagle Scout Project at the Abalone Cove parking turnout. Mr. Waldiya led a group of scouts installing a fence along the Preserve habitat restoration area.

### **Project Coordination & Emergency Work:**

OSM Staff help to coordinate multiple projects within the Preserve to ensure NCCP / HCP compliance together with the Preserve Habitat Manager, the Palos Verdes Peninsula Land Conservancy (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with the Public Works Department, PVPLC, and public utilities in the fourth quarter:

October 10-13: McGee Survey Consulting. The Public Works Department coordinates biannual land surveying within the Preserve to assist with landslide monitoring.

November 8 – 9: Preserve temporarily closed due to significant rain.

December 9 – 17: Abalone Cove Beach Advisory issued by Los Angeles County Department of Public Health.

December 11 – 14: Preserve temporarily closed due to significant rain.

December 11 – 14: Preserve temporarily closed due to significant rain.

December 14 – Ongoing: Rattlesnake Gate and Fence construction began. Work stalled due to weather and resumed in January 2023.

December 23: Burma Gate bollard construction began. Work stalled due to weather and resumed in January 2023.

December 30 –January 18: Palos Verdes Nature Preserve temporarily closed due to significant rain.

The following is a list of maintenance projects and events that transpired during the fourth Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

- Vegetation Trimming: 10
- Installing Signs: 6
- Removal of Graffiti (Additional graffiti deferred to GPC): 29
- General Maintenance: 168
- Total: 213

## **OVERALL VISITOR CONTACTS:**

### **Total Contacts: 5,211**

Hikers: 4,245

Dog Walkers: 521

Cyclists: 386

Equestrians: 59

Warnings: 60

Education: 399

### **Calls for Assistance: Transports 6**

Heat exhaustion & heat stress: 6

### **Preserve Information and Reporting Hotline Calls: 20**

Trail Status and General Information: 6

Parking Issues: 5

Animals Off Leash: 3

Gate Unlocked / Condition: 2

Maintenance Issue Reported: 1

Injured Wildlife: 1

Illegal Trimming of Flora: 1

Rock Throwing: 1

Unauthorized Vehicle on Trail / Reckless Driving: 1

### **Social Media Educational Outreach**

OSM Staff proactively searches social media sites for group gatherings scheduled within the Preserve to educate visitors on Preserve rules and group size restrictions. Groups over twenty participants are not allowed in the Preserve for the purpose of natural resource protection. Over the last quarter, OSM Staff contacted 5 groups to monitor activity planned for the Preserve and to proactively provide information on Preserve regulations.

## **ENFORCEMENT SUMMARY:**

### **Parking Citations Issued: 179**

#### **By Violation:**

Park by Permit – 161

Posted Temporary No Parking / Fire Lane – 15

Handicap Zone – 2

Other- 1

#### **By Location:**

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) –112

Del Cerro Park – 51  
Abalone Cove Reserve – 10  
Forrestal Reserve – 4  
Other – 1

**Notice to Appear Citations Issued: 10**

By Violation:

Closed Area – 4  
Dogs off Leash - 4  
Animals on the Beach – 1  
Feeding Wildlife – 1

By Location:

Abalone Cove Reserve – 4  
Ocean Trails Reserve – 4  
Forrestal Reserve – 1  
Alta Vicente Reserve -1

**ACTIVITY REPORT BY RESERVE:**

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

**Abalone Cove Reserve:**

	Public Contact	Education	Warning	Enforcement
Hikers	304	42	4	3
Dogs	32	16	11	1
Bicyclist	1	0	0	0

On September 9, one of two binoculars was stolen from the park side. A police report was submitted. On October 14, Los Angeles County Sheriff Department had located the binoculars, but the optics inside were missing and had been sawed off. Staff is working on replacement unit to reinstall.





On October 18, a kitten was found near Palos Verdes Drive South by a Los Angeles County Sheriff Deputy. The kitten was rescued and adopted by park patrons from Abalone Cove. It is unknown how long the kitten had been on the road, or where it may have been dumped. Abandonment of animals is prohibited per Rancho Palos Verdes Municipal Code 12.16.150

On October 19, Staff completed a multi-day project to cover up a spur trail that ran along the coastal blufftop fencing by the Portuguese Point Loop Trail. Spur trails are unauthorized, as use causes compaction and damages the habitat and native seedbank.



On October 22, Scout Shubham Waldiya, from Troop 378, worked with OSM to complete his Eagle Scout Project. The project included the installation of a wooden

fence adjacent to Chapel View Trail and the perimeter of the parking lot. The project included a total of 387 man-hours from 37 volunteers!



On October 27, Staff replaced older “No Animals on the Beach” signage with new signage that is consistent with other coastal locations in the Preserve, which remind visitors that animals, including dogs, are not permitted on the beach.



On November 8, Staff found three bullets tied by a string to a tree on Abalone Cove Trail. A report was made to the Los Angeles County Sheriff Department, and the bullets were removed from the trail.

On December 1, Rangers were notified of a rock pile formed in Sacred Cove Beach. Individuals likely used the structure to hide behind to perform illegal and/or suspicious activity. The rocks were likely moved from beach and piled up to form this structure. Staff took apart and dispersed the pile.



On December 9, Los Angeles County Lifeguards informed Staff of a Beach Advisory issued for Abalone Cove Beach. The advisory recommended the public remain out of the water due to water quality samples collected by the Public Health and Los Angeles County Sanitation District that were below state standards. Signage was placed at Abalone Cove Beach to advise the public.



### **Agua Amarga Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	10	1	0	0
Dog	4	2	1	0

Rangers received various reports of dogs off leash by several individuals and continue to patrol this Reserve to educate and enforce trail users regarding leash laws.

### **Alta Vicente Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	35	17	0	1
Dog	6	5	0	0

On October 10, Rangers observed domesticated rabbits along the lower section of the Reserve. A total of 20 domesticated rabbits were identified, of which 17 were captured by OSM Staff, and 3 had been deceased. It is prohibited to release or abandon animals on any city-owned property, per the City's Municipal Code 12.16.150. Additionally, domesticated pets may carry diseases that can affect local animal populations.



On November 9, Rangers observed and contacted an individual feeding wild rabbits within the reserve. Feeding wildlife is not permitted in the City. Wild animals are not pets; doing so can make them dependent on humans as a source of food, and they may become unable to survive on their own.

### **Filiorum Reserve**

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	15,298	27	4	0	0
Dog	NA	8	1	0	0
Biker	1,257	1	0	0	0
Equestrian	NA	0	0	0	0

On November 15, Staff conducted repairs to a trail counter located in the Reserve. Trail counters are a great tool to assist the City with monitoring types of use on specific trails and providing overall counts to estimate the number of visitors at popular access points.



On November 29, Staff repaired the wooden posts and rope fencing along Pony Trail. The City continues to work with PVPLC on habitat damage, spur trails, and other issues in this area.

On December 14, construction began on Rattlesnake gate and fence. No trail closures took place, however, Park Mobile Reservation Zone C was temporarily shut down to allow crews to stage vehicles and equipment. Construction has continued into the next reporting quarter, and is anticipated to complete by beginning of February 2023, weather permitting. Once completed, the hours for Rattlesnake Trail will coincide with those at Burma Rd and Forrestal Drive, and will be as follows:



### **Forrestal Reserve**

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	16,623	326	18	2	1
Dog	NA	58	5	3	0
Biker	363	39	5	0	0

Park Rangers have been assisting with the management of the Forrestal Reserve Parking Area, which opened to the public in late March, at the commencement of the Ladera Linda Community Park Project. While the park is under construction, Preserve parking is provided along Forrestal Drive, behind the Forrestal gate weekends and holidays from 7 a.m. to one hour after sunset. Park Rangers are coordinating with City Departments and the LA County Sheriff's Department to educate and enforce the parking area. During this quarter, approximately 892 vehicles parked on Forrestal Drive during operating hours.

On October 20, Rangers observed damage to the trail counter located on Purple Sage Trail. The sensor had been removed from the trail counter. The trail counter was able to capture ingress, but not egress, therefore providing inaccurate data on overall trail use. A police report was filed, and repairs were made with the assistance of the vendor.

On October 28, Rangers found a broken City lock at the exit gate on Forrestal Drive. The lock had been forced open. A police report was filed to document the incident, and the lock was replaced. No other vandalism took place on the property.

In December, Rangers were notified of damage to Flying Mane switchbacks, including new spur trails, and posts and cables on both sides of the trail dug out and tossed aside. Rangers will continue to monitor this area, and are coordinating with PVPLC on repairs.



### **Ocean Trails Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	305	17	1	0
Dog	29	10	8	4
Biker	0	0	0	0

During this reporting period, OSM Staff continued to coordinate closures at Coastal Switchback Trail and the bridge near Lakeview Trail.

Rangers have continued to patrol the beaches at Ocean Trails Reserve to monitor dogs off-leash and dogs on the beach. Staff has seen a decrease in the number of violations

observed and reported; however, the public continues to report on high occurrences of violations.

On December 6, Staff removed a wooden bathtub that had washed ashore near Sunrise Trail. Staff was able to haul the item away from the beach and disposed of it in a dumpster. It is believed the item had washed ashore with other debris during high tide events.



On December 23, Rangers tagged an abandoned encampment, with no occupants found.

Trump National Golf Club staff installed new posts and cables near the bottom of Sunrise Trail to deter access to a spur trail. Spur trails are unauthorized trails that are not maintained and pose a negative impact as they fragment habitat. Rangers coordinate with Trump National Golf Club staff to ensure trail users are respecting Preserve rules.

### **Portuguese Bend Reserve**

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	37,449	2,973	170	12	0
Dog	NA	347	29	8	0
Biker	2,464	347	12	7	0
Equestrian	NA	55	8	0	0

On October 24, Rangers made contact with a repeat offender bicyclist who had previously been in violation of repeatedly riding recklessly and using an e-bike on Portuguese Bend and Forrestral trails. The rider did acknowledge use of an e-bike, but in this instance, was operating a non-motorized bicycle. The bicyclist was educated about the rules and warned not to ride an e-bike within the Preserve.

On November 1, the City received a report of damage to a “Yield” sign at the upper junction of Burma Road Trail and Ishibashi Trail, caused by a contractor vehicle. The sign was repaired and placed upright.

On November 4, Rangers received a report of spooked horses on Water Tank Trail. Two equestrians were on Vanderlip Trail and Water Tank Trail when the horses became spooked by a mountain bike rider on a non-bike trail. The lead horse ran into the wire at one of the access points into the Portuguese Bend Reserve and consequently broke the Fire Department lock. Rangers made a report of the incident and replaced the lock.

On November 26, the Los Angeles County Fire Department notified Rangers of a water leak on Burma Road Trail. Cal Water Services (CWS) was called, shut off the water, and conducted emergency repairs on CWS infrastructure, prompting the temporary closure of Burma Road Trail between Panorama Trail and Barn Owl Trail. The trail was reopened on November 27, after repairs, and additional inspections were made.

On November 28, CWS conducted maintenance and discharged water into the habitat near Burma Road Trail, which parallels Landslide Scarp Trail. No trail closures took place.

On November 28, Staff added a secondary post on the initial fence placed on the section of Rim Trail that has been temporarily closed. The bottom post had been vandalized and removed.





On November 29, Rangers received a report of two dogs off leash and unattended throughout the lower section of Portuguese Bend Reserve. The dogs were initially seen by contractors performing work on Burma Road Trail. The dogs could not be located, but it is believed they exited via Watertank Trail.

On December 23, Rangers received a report and repaired several fissures that have emerged on Klondike Canyon Trail. The trail continues to be monitored to ensure fissures are reported, and monitored with the City's Geologist.



On December 25, Rangers received a call from the Los Angeles Sheriff Department notifying Rangers of an unauthorized vehicle that drove through Burma Road Trail. Rangers responded and with the assistance of Deputies, were able to locate and stop the driver. Repairs were made to repair the entry to secure the chain at the trailhead; the vehicle was driven out by Deputies and the driver was arrested.

December 28-29, OSM Staff inspected and conducted repairs on several grade dips on Burma Road Trail. These grade dips were designed to divert water flow away from the trail to minimize ruts, which require ongoing maintenance to clear out sediment and debris.

### **San Ramon Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	1	0	0	0
Dog	0	0	0	0

On November 11, Staff retrieved a “Chevron” sign near Switchback Trail. The sign was discarded.

On December 12, Rangers contacted an individual collecting nickel-sized white garden snails. While the snails are considered invasive, take of animals, including these snails, is not permitted. The City works closely with its habitat manager, PVPLC , to monitor

invasive species and reports such findings to other wildlife agencies, such as the California Department of Fish and Wildlife.



### **Three Sisters Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	15	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0

On October 21, Staff began a multi-day project to retrieve yucca cuttings that had been dumped near Sunshine Trail (dumping on City property is illegal). Staff also identified associated illegal trimming and access into the Reserve. The tops of yuccas had been trimmed without the City's authorization.





## **Vicente Bluffs Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	243	29	0	0
Dog	37	9	0	0
Biker	1	1	1	0

On October 26, Rangers were notified of a found machete near the Adopt a Plot area in the Vicente Bluffs Reserve. The tool was disposed of properly; however, the owner was not identified.



On October 27, Rangers were notified of a palm tree that had been planted by an unknown individual near Seascape Trail. Volunteers with the PVPLC had identified this palm tree as non-native, and not authorized, and removed it.





On November 14, Rangers observed a group of 10 individuals conducting a film shoot. The party was contacted and informed that a permit is required for any commercial motion picture or still photography shoots on public and private property within the City. The group ceased filming and disbanded.

On December 21, Rangers removed language on an existing regulatory panel to clarify that cyclists are not permitted within the Reserve. During this reporting period, Rangers received several reports of bicyclists, both motorized and non-motorized and continue to monitor use to educate on trail use within this Reserve.



On December 26, Rangers were notified of a vehicle on Interpretive Trail on Christmas Day. No other information was provided, and the owner was not identified.

### **Vista del Norte Reserve**

	Public Contacts	Education	Warnings	Enforcement
Hikers	0	0	0	0

In November, the Sol y Mar HOA conducted repairs to the DG pathway that connects the public trails to the top of Vista del Norte Trail and Indian Peak Trail. Caution tape had been temporarily placed to advise the public not to use the pathway until the work was completed.



### **City Parks and Beaches**

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including homeless individuals locked in restrooms, and sleeping in playground structures, abandoned encampments, dogs off leash, drones without a permit, and photography without a permit, and after hours use.

# **APPENDIX I**

## **CITY OF RPV 2022 NIGHT HIKE ACTIVITY & TRAIL COUNTER DATA**

**2022 Night Hike Activity**  
**Palos Verdes Nature Preserve**

**Sierra Club Night Hikes via City Permit:**

January 10, 2022 -Portuguese Bend Reserve / Filiorum Reserve - **21 attendees**  
January 17, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **12 attendees**  
January 24, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **17 attendees**  
January 31, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **15 attendees**  
February 7, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **22 attendees**  
February 28, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **15 attendees**  
March 14, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **16 attendees**  
October 17, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **15 attendees**  
October 24, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **18 attendees**  
November 14, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **12 attendees**  
November 28, 2022 - Portuguese Bend Reserve / Filiorum Reserve -**10 attendees**  
December 5, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **11 attendees**  
December 19, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **9 attendees**  
December 26, 2022 - Portuguese Bend Reserve / Filiorum Reserve - **6 attendees**

**Total Night Hike Participation: 199 attendees**



## **Trail Counter Data from January 2022 – December 2022**

### **6 Trail Counters Total in the Preserve**

**Trail Counters are located at Burma Rd. Trail, Rattlesnake Trail, Pirate Trail, Fossil Trail, Exultant Trail and Purple Sage Trail**

#### **2022**

January 2022:	36,537	All Trail Counters
February 2022:	34,370	All Trail Counters
March 2022:	10,968	All Trail Counters
April 2022:	12,117	All Trail Counters
May 2022:	32,756	All Trail Counters
June 2022:	18,766	All Trail Counters
July 2022:	32,772	All Trail Counters
August 2022:	42,889	All Trail Counters
September 2022:	29,674	All Trail Counters
October 2022:	30,382	All Trail Counters (Purple Sage Counter was vandalized, sensor lens removed, resulting in some loss of data)
November 2022:	22,880	All Trail Counters (Rattlesnake Counter location was moved to improve performance, data loss for 10 days)
December 2022:	19,256	All Trail Counters

# **APPENDIX J**

## **FINANCIALS**

## 2022 Financial Report for the Palos Verdes Nature Preserve

Section 8.2 of the RPV NCCP/HCP Details the funding commitments for the City and the Land Conservancy to fulfill their respective obligations under the Plan. This section of the annual report provides the City and Land Conservancy's reported expenses for the 2022 calendar year.

### 1. City's Costs Related to Preserve Management and NCCP/HCP Obligations

The City's obligations under the NCCP/HCP and as majority owners of the Preserve lands have been executed with the funds detailed in Appendix J.

### 2. PVPLC's Costs Related to Habitat Management and NCCP/HCP Obligations

The Land Conservancy's obligations under the Plan include restoring a new habitat at five acres per year minimum, biological monitoring and reporting, TERRP invasive species control program, and volunteer program management, as detailed in this Annual Report. Additional activities beyond the obligation including trail maintenance and signage projects were achieved. Appendix J provides the total expenses and in-kind contributions related to the Conservancy's activities in 2022.

### 3. Additional Projects

The Conservancy and City continually seek funding to implement the obligations of the NCCP/HCP, to implement new projects above-and-beyond the scope of the NCCP/HCP, and to acquire properties to enroll into the Preserve. The following describe projects that achieve more than the minimum requirement for the Conservancy's obligations under the Plan.

3.1. The City of Rolling Hills awarded \$81,700 to the Land Conservancy to reduce approximately 47.5 acres of Acacia and annual nonnative fuel load vegetation within the Portuguese Bend Reserve.

3.2. New Preserve signage was installed at Ocean Trails Reserve, Vista del Norte and Forrestal Reserves, totaling \$55,400. The Conservancy facilitated the project which was reimbursed by the City.

### 4. Acquisition of the 96-acre Wildlife Corridor

The successful negotiation and purchase of 96 acres of open space, historically known as Lower Filiorum and Plumtree properties, from York Point View Properties, LLC. Secured this land as a live-in corridor and was added to the Palos Verdes Nature Preserve. The City and PVPLC acted as co-buyers on the purchase and sale agreement, where the City owns the land in fee title and the Conservancy is the grantee of the Conservation Easement to protect the land in perpetuity and serves as Habitat Manager.

Public funding was awarded from the US Fish & Wildlife Service with \$12.6 million through the Cooperative Endangered Species Conservation Fund. The Wildlife Conservation Board awarded \$4.8 million, the City of Rancho Palos Verdes contributed \$1.3 million and the Los Angeles County Regional Park and Open Space District awarded the Land Conservancy a competitive grant for \$1 million from Measure A. The Land Conservancy contributed \$1.3 million of community contributions to complete the \$21M land acquisition effort in July 2022.

#### 5. Nonwasting Endowment

To assure maintenance of the Preserve once the NCCP/HCP Permits expire, beginning in 2006, the City shall provide annual payment to the PVPLC with a minimum of \$10,000, adjusted annually using Consumer Price Index (CPI-U) for a separate non-wasting endowment fund. The PVPLC shall manage the endowment to cover its costs for post-Permit conservation management thereby removing any financial obligations related to conservation management by the City post-Permit Term. At the end of 2022, there is approximately \$188,055 within the account.



## 2022 Preserve Expenditures of the Palos Verdes Peninsula Land Conservancy

<b>Expenses for Preserve Activities</b>		
Contribution to Wildlife Corridor Acquisition (including legal fees and Phase I ESA)	\$	1,303,800
Staff, Interns and Americorps	\$	496,789
Fuel Load Reduction in Portuguese Bend (funded by Rolling Hills)	\$	81,700
Preserve Signage (funded by Rancho Palos Verdes)	\$	55,400
Restoration Equipment and Expenses	\$	81,460
Goat Grazing	\$	12,250
Vehicle Expenses	\$	17,617
Indirect Costs (insurance, permits, accounting, office)	\$	76,311
<b>TOTAL EXPENSES</b>	<b>\$</b>	<b>2,125,327</b>

<b>In-Kind Services</b>		
Pro-bono Professional Services	\$	119,695
Volunteer In Kind	\$	688,885
<b>TOTAL ADDITIONAL PRESERVE PROJECTS</b>	<b>\$</b>	<b>808,580</b>

\*\*\* Palos Verdes Peninsula Land Conservancy Staff Allocations by Position

Executive Director (50%)  
 Conservation Director (50%)  
 Biologist (70%)  
 Stewardship Manager (25%)  
 Stewardship Technicians, 4 (50%)  
 Native Plant Nursery Manager (20%)  
 Trail Technician (75%)  
 Volunteer Program Manager (30%)  
 Volunteer Coordinator (30%)

**City of Rancho Palos Verdes Financial Reporting 2021-2022**

DESCRIPTION	2016/17 NCCP/HCP	FY 2021/22
<b>COSTS RELATED TO FULFILLING CONSERVATION REQUIREMENTS</b>		
Misc. City Restoration Activities	30,000	8,000
Senior Administrative Analyst* (15%)	43,784	23,430
Recreation Specialist (10%) ***	21,126	-
Non-wasting Endowment paid to PVPLC	10,000	188,055
PVPLC Contract	144,300	155,154
Irrigating Habitat Restoration Areas**	-	1,955
<b>SUB-TOTAL COSTS RELATED TO FULFILLING CONSERVATION REQ.</b>	<b>249,210</b>	<b>376,594</b>
<b>COSTS RELATED TO PUBLIC ACCESS AND LAND OWNERSHIP</b>		
Public Safety (70%)	567,000	227,943
Senior Administrative Analyst (55%)	145,946	78,099
Recreation Supervisor I (Norma Saldana) (70%)	-	59,472
PT OSM Staff Positions (70%)	219,528	59,676
Reporting Line/Phone Service	2,400	1,611
Regulatory Literature	2,500	-
Other - Misc. Supplies	31,000	99,210
Maintenance Superintendent (7%)	16,227	10,423
Maintenance Workers (3) (7%)	20,316	20,660
Vehicles (maintenance and fuel)	2,197	18,587
Fire Modification	108,000	314,521
Bird Surveys	30,000	2,565
Portable Restrooms	15,000	26,156
Landslide Abatement Districts	60,096	160,646
Road Maintenance	25,000	28,740
Trail/Misc. Maintenance	31,000	165,345
Signage	10,000	-
<b>SUB-TOTAL COSTS RELATED TO PUBLIC ACCESS &amp; LAND OWNERSHIP</b>	<b>1,286,210</b>	<b>1,273,654</b>
<b>TOTAL PRESERVE ANNUAL BUDGET</b>	<b>1,535,420</b>	<b>1,650,248</b>